

**GREAT
WESTERN
MANUFACTURING
CO.**

**LEAVENWORTH
KANSAS AND
KANSAS CITY
MISSOURI**

CATALOGUE No 100

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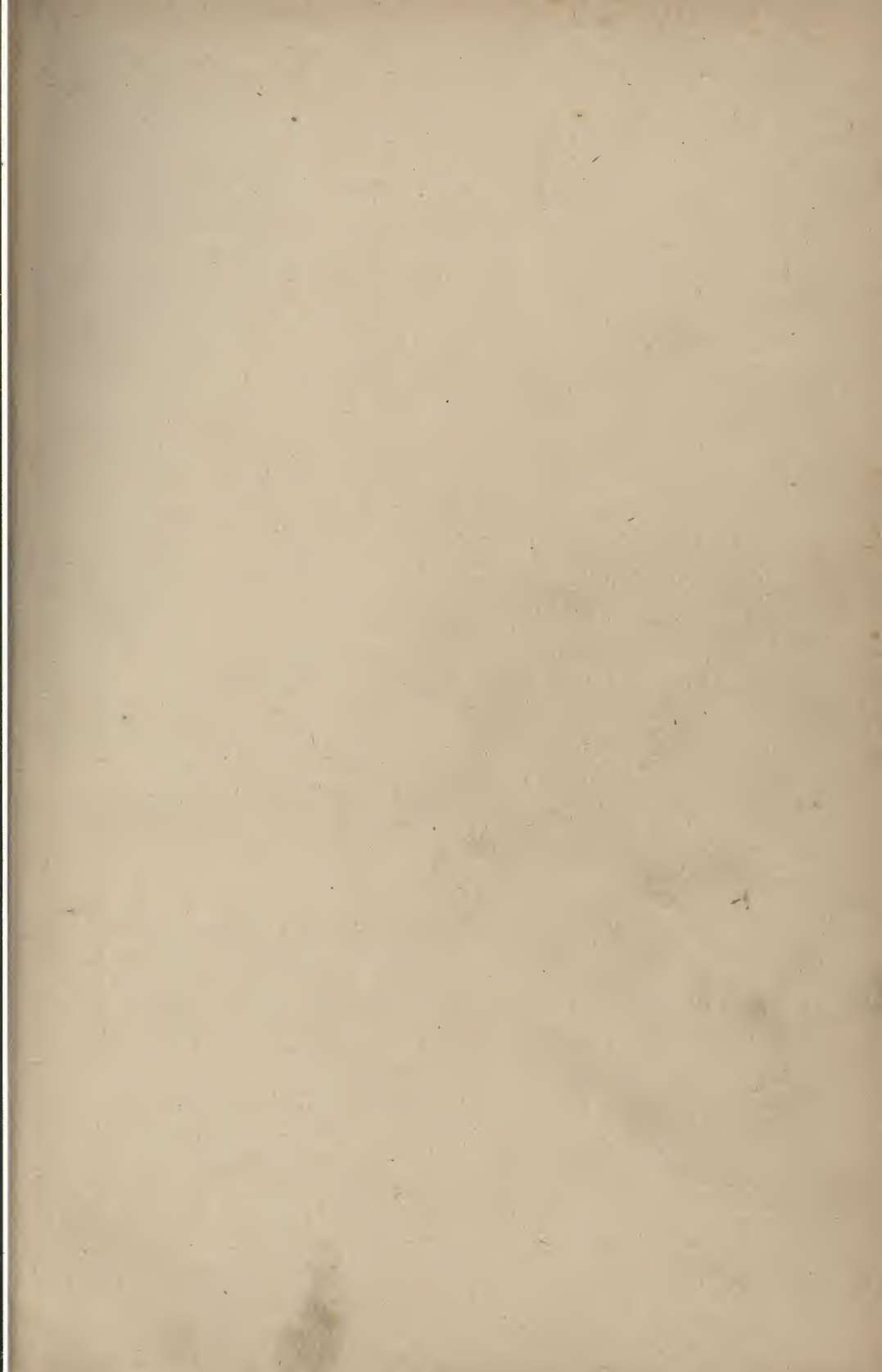
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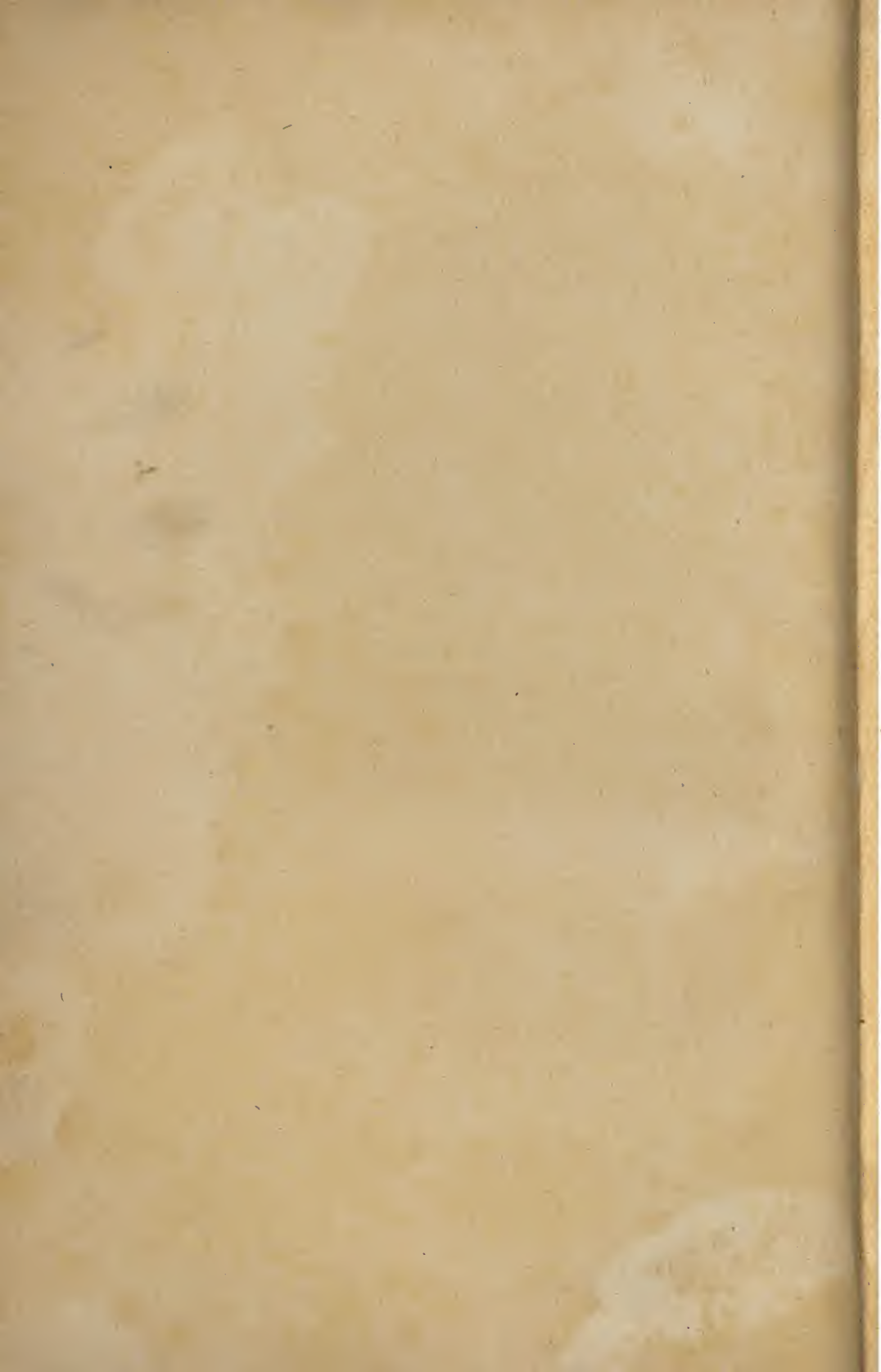
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WORKS ESTABLISHED
1858



GENERAL OFFICE AND FACTORY
LEAVENWORTH, KANSAS.



WAREHOUSE AND SALESROOMS, KANSAS CITY, MO.
R. H. VARNEY, Manager.

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CATALOGUE NO. 100

GREAT WESTERN MANUFACTURING CO.

ENGINEERS, FOUNDERS AND
MACHINISTS

CONTRACTORS AND BUILDERS OF

FLOUR MILLS, CORN MEAL MILLS,
ELEVATORS AND COMPLETE
POWER PLANTS

MINING MACHINERY, CEMENT AND PLASTER MILLS,
STARCH MILLS, SAW MILLS, ETC.

SUPPLIES OF EVERY DESCRIPTION FOR FLOUR MILLS,
ELEVATORS, BREWERIES, ICE PLANTS, PACKING
HOUSES, DISTILLERIES, FACTORIES, ETC.

GENERAL OFFICE AND FACTORY
LEAVENWORTH, KANSAS

WAREHOUSE AND SALESROOMS
1221-1223 UNION AVENUE, KANSAS CITY, MISSOURI

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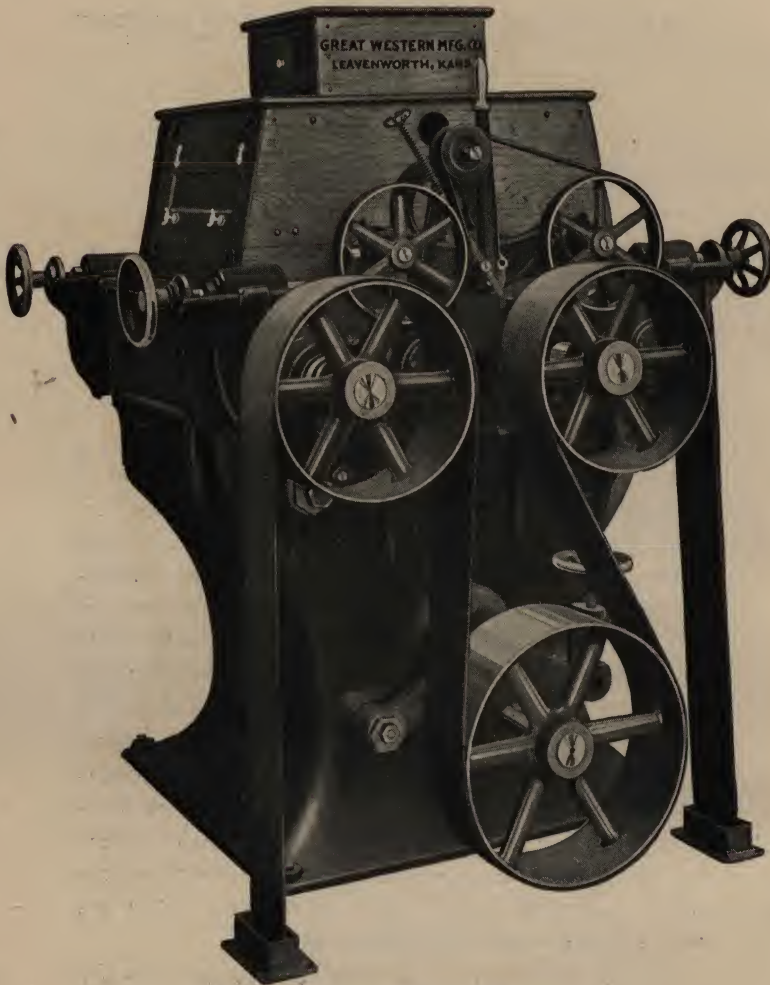
Office of
**GREAT WESTERN
MFG. CO.**

Again we greet you with a new catalog, our No. 100. We trust you will place it in a convenient place, and refer to it often. New tools and specialties are constantly being introduced, therefore, if you do not find what you want in this book, write us regarding your needs. We can either furnish you the article desired, or advise you where it can be obtained. We are at your service; write us freely.

In Kansas City, Mo., we, in 1894, opened a warehouse and salesrooms. We now occupy the five-story building at 1221-1223 Union Avenue, where we carry an extensive line of machinery and supplies. Call and see us when in the city. We are only a block from the Union Station.

At our factory in Leavenworth, Kansas, we are constantly increasing our facilities by adding new machinery, erecting new buildings, and making other improvements. We aim to keep right up with the times and turn out nothing but reliable, honest machinery of the best class.

Yours truly,
GREAT WESTERN MFG. CO.

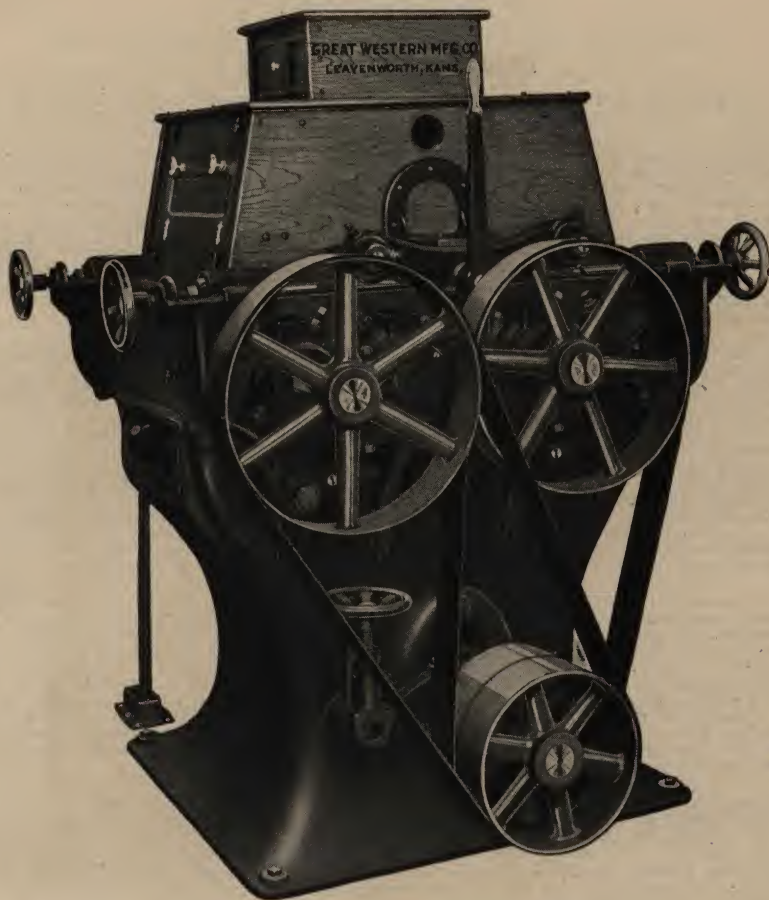


Driving Side. Style "A" and "B" Drive.

Double Roller Mills

BALL AND SOCKET COMBINED COLLAR AND RING OILING TYPE

The frame or base of our Roller Mill is cast in one piece with the tunnel for the countershaft, which makes it very rigid and stiff, all of which is necessary to hold the wearing parts and adjustments in their true position. The casting is made smooth, and we also paint the interior of the base with white lead and linseed oil, which not only gives a nice finish to the inside of the base but prevents any of the stock from adhering to the sides. It is a very simple matter to tram the rolls in our machine. The device with which this is accomplished is so designed that when the rolls are placed in tram, it is locked in position, so that the roll remains level until one or the other of the bearings wear. The adjustable roll is carried in swing arms pivoted on an eccentric sleeve, this sleeve being secured to the frame of the machine by means of a large machined cap screw. After the roll is leveled by turning the eccentric sleeve, which raises or lowers the swing arm, it is locked in position by simply setting up hard and fast the long cap screw.



Differential Side. Style "A" Drive.

Double Roller Mills

BALL AND SOCKET COMBINED COLLAR AND RING OILING TYPE

We equip these Roller Mills with four different styles of drives as follows:

The "A" drive has countershaft running through the base of machine, the slow rolls being each driven with a single belt from this countershaft.

The "B" drive has a separate countershaft placed below the floor, and carried in adjustable drop hangers, and arranged to tighten both belts on the fast side and slow side by one operation from the roll floor. Only one belt is used on the slow side and this is also provided with a tightener on the roll floor so that this belt can be independently tightened if so desired.

The "C" drive consists of two belts to the roll line shaft, one on the fast and one on the slow side. A tightener is provided for the belt on the fast side and is placed on the roll floor, while the tightener for the slow side is placed under the roll line shaft. We offer different types of tighteners for the differential belt of this drive, all of which will be illustrated and described later.

The "D" drive is the same countershaft drive as style "A," except only one belt is used on the slow side. This belt is tightened independently of the fast side by means of a tightener frame containing two pulleys, bolted to the side of the frame of machine. The adjustment is made by a screw and hand wheel connecting one end of tightener frame with a stationary plate on the floor. The bearings on the countershaft being ball and socket, either the fast or slow belts can be tightened without throwing them out of line with one another. The "D" drive is not used on mills having 10 inch diameter rolls.

Double Roller Mills

BALL AND SOCKET COMBINED COLLAR AND RING OILING TYPE

The device for spreading the rolls of our Roller Mill consists of a shaft running through the machine; this shaft having a lever on each end which, when operated, throws both pairs of rolls apart or returns them to their grinding position without changing the "set." The feeder belt tightener is connected to this shaft so that when the rolls are thrown apart the feeder belt is slackened and the feeder stops. A connecting rod between this shaft and feeder belt tightener is provided with a right and left hand screw and hand wheel, making it possible to take up any slack in the feeder belt that might exist. Practical millers who have experienced the slipping of feeder belts when starting their mill will appreciate the importance of being able to take up the slack of these belts without throwing off the feed or shutting down the plant. When the rolls are thrown into grinding position, the adjustments are so designed that they are locked in this position and cannot get away until thrown apart.

The bearings are of the Ball and Socket type and are so designed that when the machine is in operation there is a constant flow of oil through them; the oil after passing around the journal is returned to the oil well in the bottom of the shell containing the oil supply. The bearings being ball and socket permits them to adjust themselves to the journal, which prevents undue friction and the journal is at all times firmly seated in the bearings. Our oiling device consists of a large collar secured to the journal, and on this collar is placed a large, flat ring. When the machine is in operation, the oil is lifted from the oil well and carried upward between the collar and ring; as the top is approached the distance between the collar and the ring gradually narrows, forcing the oil out on either side where it is distributed through the bearings in oil ways provided for the purpose. On these bearings where the journals do not extend through, a removable cover is placed on the end of the bearings to keep out all dirt. A plug is placed in the bottom of oil reservoir to drain off the refuse. An inspection device is placed on one end to the side of each bearing to prevent over filling. All bearings are heavily lined with a fine grade of babbitt metal and scraped to a perfect fit. The bearings are made to part on an angle sufficient to throw all the strain on the bottom.

The arrangement of the pull rods and springs for adjusting the grinding pressure is of that type which experience has taught to be the most satisfactory. An eye is forged on one end of the pull rods; this eye is bored out to fit neatly over an eccentric which is secured to the spreader shaft. The other end of the rod is provided with long thread and nut, and receives the end of the hand wheel screw. A spring box is cast on the swing arm, and is provided with a steel spring; the pull rod passes through this spring, and the grinding pressure is obtained by the strength of the spring. The hand wheels have a left hand screw of very fine pitch, and to set the rolls together the hand wheel is turned to the right which will release the spring; turning the hand wheel to the left increases the tension of the springs, and throws the rolls apart. Should any foreign substance pass between the rolls, the spring will yield momentarily and allow it to pass through, when the rolls will come back to the exact grinding position they were originally.

We equip our machines with either the Great Western Automatic Roll Feeder or the Combs Automatic Shake Feeder, both of which have proven to be highly satisfactory, feeding an even thin stream to the rolls without the necessity of constant watching.

The Great Western Feeder is provided with a steel gate adjustable vertically, while the feed roll is adjustable horizontally by means of adjustable bearings on the outside of the housing. On account of the adjustability, both vertically and horizontally, it is very easy to adjust the feeder to feed an even stream the entire length of the roll. The steel gate is held against the feed roll by means of two tapered helical springs, supported by a cast iron bracket bolted to the inside of the housing. An adjustable screw with lock nuts pass through this bracket and spring, permitting the operator to put as much pressure between the gate and the feed roll as is required to spread the stock evenly. In all other types of roll feeders great difficulty has been experienced in preventing more stock feeding to the rolls in the center of the feeder than on each end, due mainly to the pressure of the stock above the feed roll. We overcome this difficulty by providing a light bar of steel and riveting each end to the lower front side of steel gate, the center of bar being supported by a 1-4 inch bolt, one end of which is secured in the feed gate, the other passing through the bar and provided with thumb nuts on either side. By adjusting these nuts, as much pressure can be exerted in the middle of the gate as on the ends. The bearings for the roll feeders are large and of sufficient length to reduce the wear to a minimum. They are carried in a cast iron bracket, are adjusted horizontally, and if it is ever required to remove them for rebabbiting, it is a simple matter to do so by loosening one of the screws holding them.

In the type of Roll Feeder we furnish for flaky break stocks our Squirrel Cage Feeder, which has proven to be an excellent device for feeding stock of this character. The Squirrel Cage operates in a half round trough, the trough being double and made of perforated steel with perforations $\frac{1}{8} \times \frac{3}{4}$ ". The outside trough is stationary, while the inner one is adjustable longitudinally by a screw and hand wheel placed on the outside of feeder housing. To give the feeder the greatest capacity it is only necessary to adjust the double trough so the perforations will be one over the other, giving openings in the trough $\frac{1}{8} \times \frac{3}{4}$ ". By turning the hand wheel the perforations can be made smaller, or closed entirely if so desired.

To the miller who is looking for a shake feeder for feeding soft stock, and where a double stand of rolls is used on two different stocks, one soft and the other coarse, the Combs Automatic Shake Feeder is a delight. This feeder is so constructed that each feed board has independent adjustments, which permit the softest middlings to be fed to one pair of rolls in a thin, even stream the entire length, while to the pair of rolls on the opposite side can be fed the coarsest stock in the mill.

Double Roller Mills

BALL AND SOCKET COMBINED COLLAR AND RING OILING TYPE

This is accomplished by the wide range of adjustments peculiar to this feeder, by means of which the feed board can be adjusted from the faintest tremor to the full throw of the cams by simply turning two thumb screws. These adjustments are all on the outside of the housing, and are accomplished by means of two hardwood springs, one at each end of the feed board, which are the only springs used in the construction of this feeder. Different styles of shoes are furnished for the different stocks to be fed. The Combs Feeder runs very slow as compared to the other shake feeders.

In order to remove the rolls from our mill it is not necessary to tear the mill to pieces or take down a lot of spouting. A section of the wood work can be slipped out, the caps of the bearings removed, the pull rods detached from the swing arm, permitting these to swing down by the side of the machine, and then the rolls will be free to come out by the passage made by removing these parts.

All smooth rolls are equipped with our adjustable brushes, or with adjustable steel scrapers.

Our roller mills of this type can be made either Right or Left Hand at the option of the purchaser. This is accomplished by turning the rolls end for end in their bearings. All the parts of our roller mills are made in duplicate according to templates, making the parts interchangeable, and repairs may be had at any time with the assurance they will fit.

The workmanship and material of our Mills is of the very best, resulting in a roller mill of the very highest grade.

DIRECTIONS FOR ORDERING

When ordering roller mills, give the size and style drive wanted; state whether right or left hand; whether divided or not divided; whether smooth or corrugated rolls, giving style and number of corrugations desired; whether Roll or Shake Feeder. Every part of the machine bears a symbol number, and in ordering any parts be sure to give the number on the part wanted.

Double Roller Mills

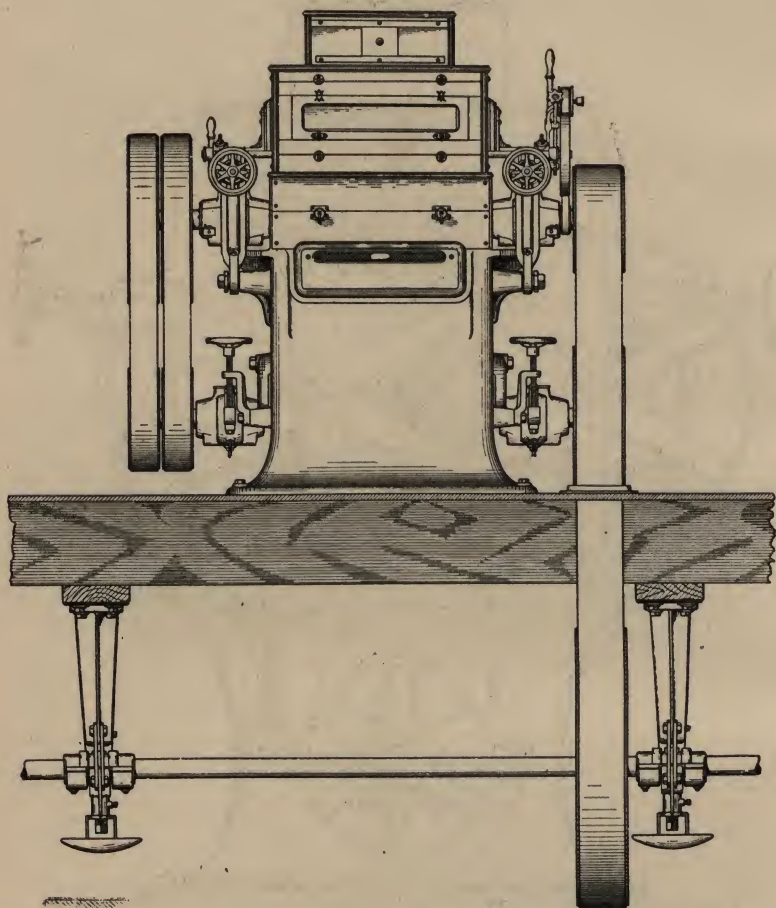
BALL AND SOCKET COMBINED COLLAR AND RING OILING TYPE

DIMENSIONS AND PRICES

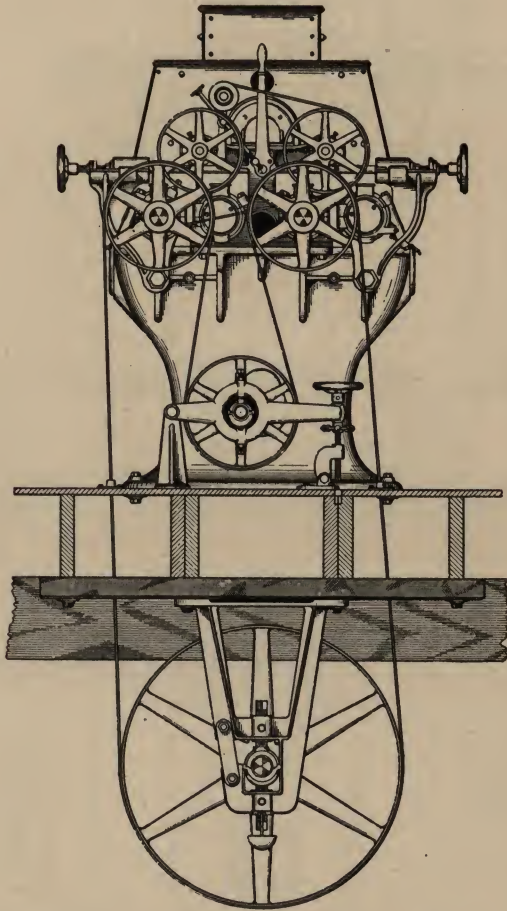
Size of Rolls	Prices			Weight	Length of Driving Belt Above Floor	From Floor to Center of Rolls	Approximate Horse Power Required
	Smooth	Divided	Corrugated				
9" x 18"	625.00	637.50	650.00	4000	Style A, B & D Drives, 18' Style C Drive, 18' 6" Style A & B Drives, 20' Style C Drive, 20' 6"	3' 4"	3-5
9" x 24"	700.00	717.50	735.00	4600		3' 4"	4-6
9" x 30"	785.00	807.50	830.00	5225		3' 4"	5-7
9" x 36"	895.00	922.50	950.00	6000		3' 4"	6-9
10" x 30"	950.00	975.00	1000.00	6500		3' 6 1/2"	5-8
10" x 36"	1050.00	1075.00	1100.00	7500		3' 6 1/2"	6-9
10" x 42"	1150.00	1175.00	1200.00	8200		3' 6 1/2"	7-11

Size of Rolls	Height	Dimensions		Speed Fast Rolls	Driving Pulleys, Fast Rolls			
		Depth Over Hand Wheels	Width Over Pulleys		Style A Drive	Style B Drive	Style C Drive	Style D Drive
9" x 18"	5' 10"	4' 10"	4' 8"	500-550	16 x 6 1/2	16 x 6 1/2	18 x 5 1/2	16 x 6 1/2
9" x 24"	5' 10"	4' 10"	5' 4"	500-550	16 x 7 1/2	16 x 7 1/2	18 x 6 1/2	16 x 7 1/2
9" x 30"	5' 10"	4' 10"	6' 1"	500-550	16 x 7 1/2	16 x 7 1/2	18 x 6 1/2	16 x 7 1/2
9" x 36"	5' 10"	4' 10"	6' 9 1/2"	500-550	16 x 8 1/2	16 x 8 1/2	18 x 7 1/2	16 x 8 1/2
10" x 30"	6' 3"	5' 5 1/2"	6' 8"	450-500	20 x 8 1/2	20 x 8 1/2	22 x 7 1/2	
10" x 36"	6' 3"	5' 5 1/2"	7' 4"	450-500	20 x 9 1/2	20 x 9 1/2	22 x 8 1/2	
10" x 42"	6' 3"	5' 5 1/2"	7' 10"	450-500	20 x 9 1/2	20 x 9 1/2	22 x 8 1/2	

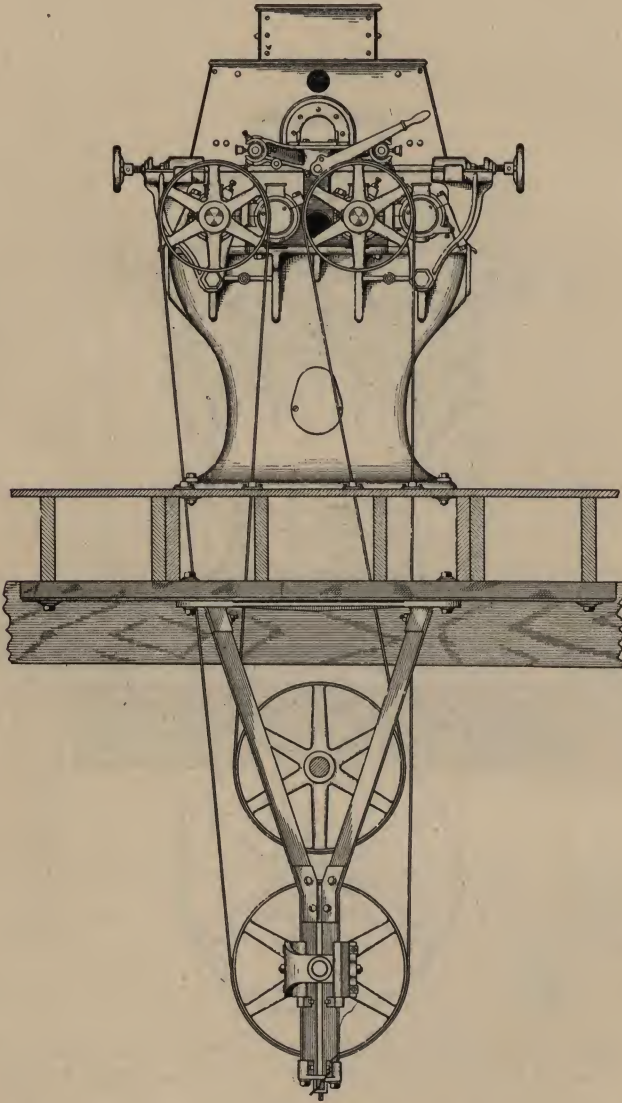
We publish a special booklet containing a more complete description of these Roller Mills, with additional cuts showing more of the details of construction, which we will be pleased to send upon request.



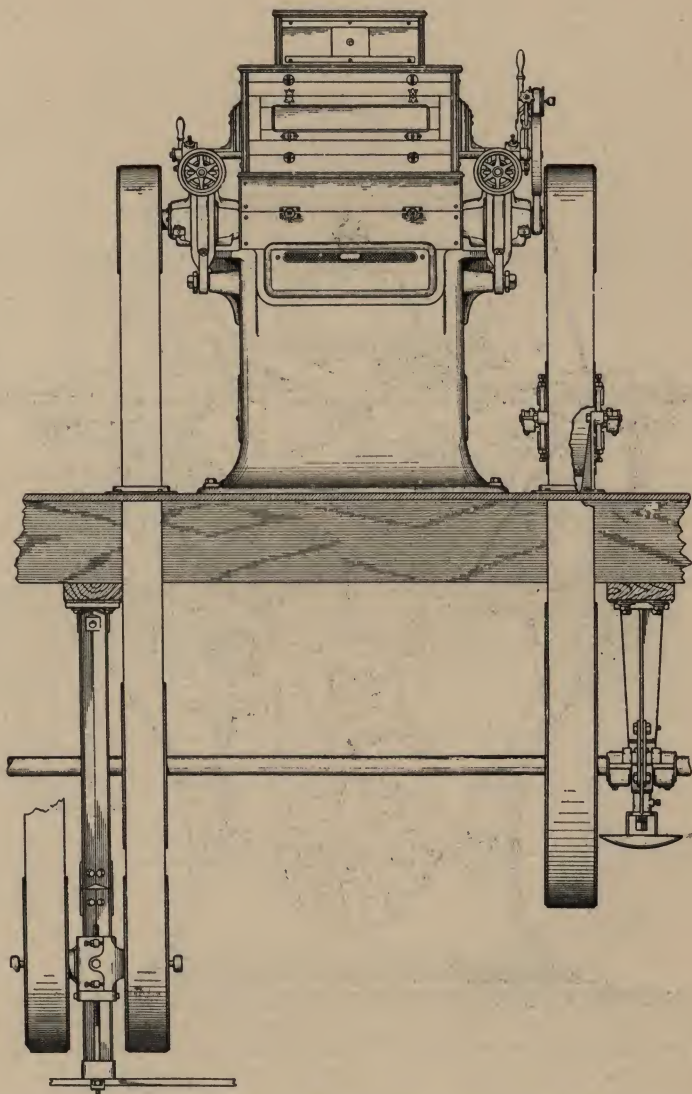
Front view Style "A" Drive.



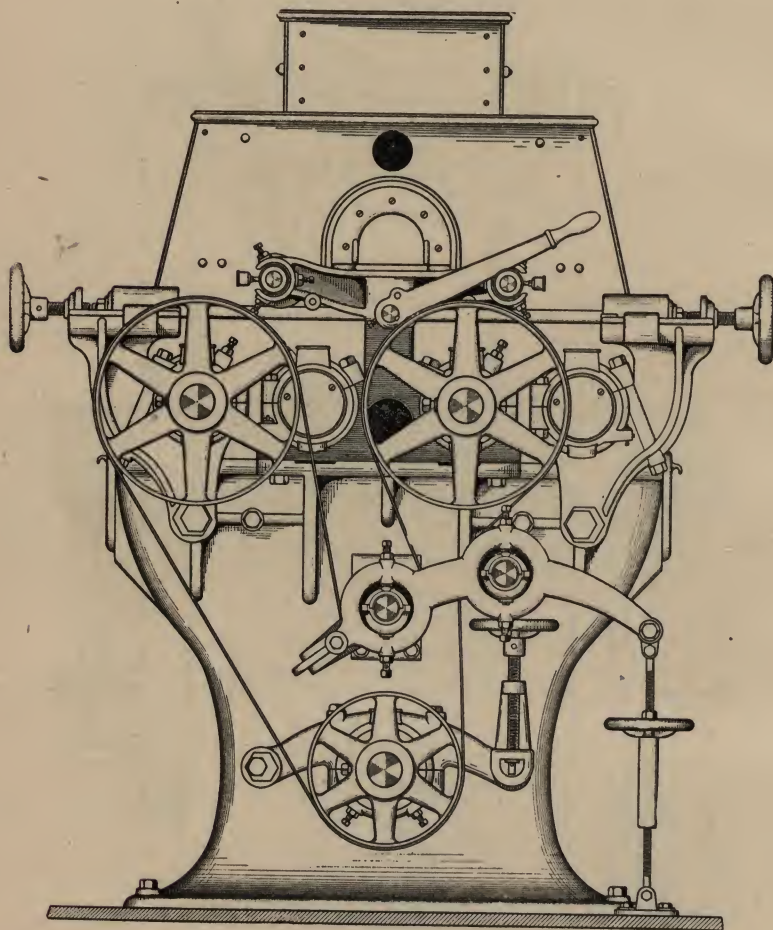
The cut shows the fast side of Style "C" Drive. This style is driven both sides from roll line shaft, with the tightener for slow side placed below line shaft.



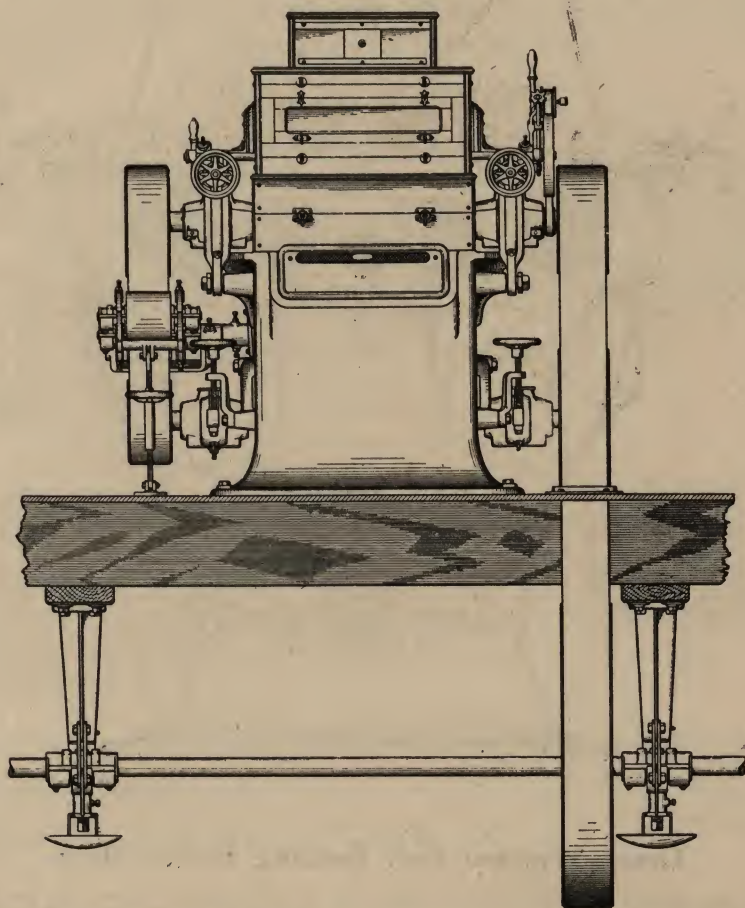
The cut shows slow side Style "C" Drive. The tightener is placed below the roll line shaft. It is possible to use several different styles of tighteners with this drive, some of which are shown on pages 191-194.



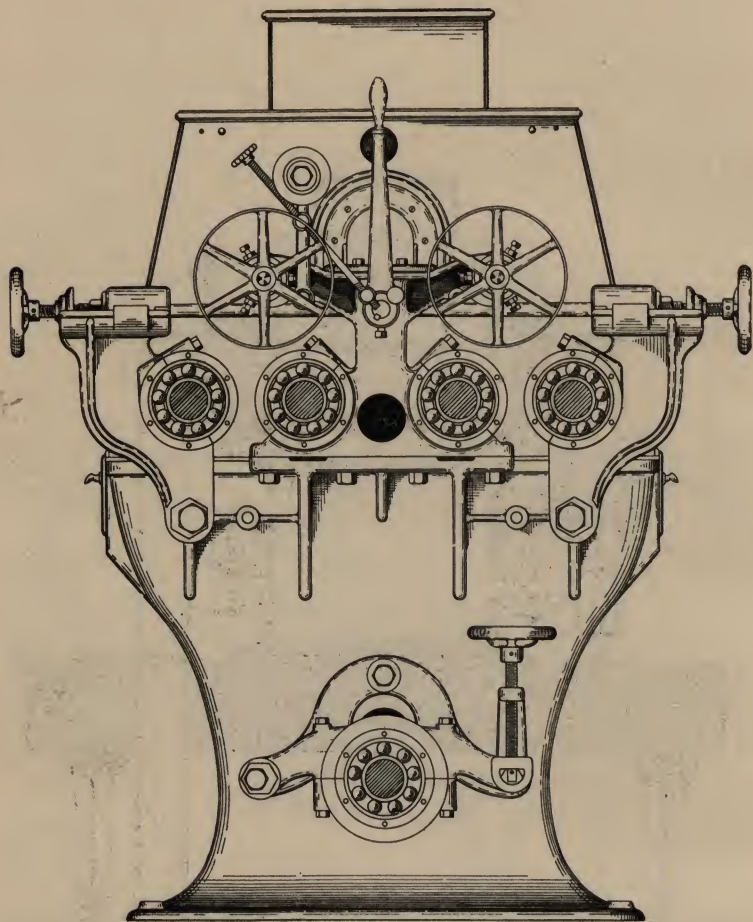
This cut shows the front view of Style "C" Drive. It will be seen both sides of the mill are driven from roll line shaft.



This cut shows the slow side of Style "D" Drive, mill being driven from the tunnel countershaft with one belt. The fast side is shown on page 8.



This cut shows our Style "D" Drive which has tunnel countershaft, mill being driven with one belt from roll line shaft.



Great Western Ball Bearing Roller Mills

That ball bearings are great savers of power over the plain bearing, or even the best designed self oiling babbitted bearing, is evidenced by the many applications of this type to automobiles and practically all other lines of machinery. Beginning in a small way these bearings were first applied to small and light running machinery, but in these applications their value was so firmly established that one of the leading engineering concerns of Germany ten years ago employed a noted expert to make a careful investigation as to the saving in power of ball bearings as compared with babbitted bearings, and the best design as well as the best material to be used in their construction. The result of these investigations, and the recent advent of high grade alloy steels, has made the ball bearing possible for very heavy loads and high speeds.

Roller Mills, on account of their numerous bearings, and the excessive friction in these bearings, and the number of machines forming a large part of the equipment of any mill, are consumers of a large part of the power necessary to operate the complete plant. For this reason, and to meet the demands of those mill managers to whom power is a very important item, we have arranged to equip our New Style Roller Mill with the Hess-Bright Ball Bearings. In several tests which have been made, we are able to effect a saving of 25% to 50% in power.

Besides a saving in power, Ball Bearing Roller Mills have several advantages in their favor. As friction has been eliminated, there are no hot bearings, nor is it necessary to apply oil to the bearings oftener than twice a year, and, as a small amount of oil is used, there can be no waste of oil, consequently a cleaner machine is possible.

Great Western Ball Bearing Roller Mills

In applying ball bearings to our Roller Mills, we have in addition to our experience of more than fifty years as designers of high grade machinery, and mill builders, had the benefit of the advice and practical experience of the engineering department of the Hess-Bright Co., the manufacturers of ball bearings, in applying their bearings to our Roller Mills.

In the countershaft type of Roller Mill, where one or two short belts are used to get the differential, it is next to an impossibility to keep this countershaft level, as the fast or long belt will have more slack than will the short one on the slow side. In order to take care of the slack in both belts, and at the same time have no side strain on the ball bearings for this shaft, we place the ball bearings in ball and socket housings, which entirely eliminate any side strain from the bearings.

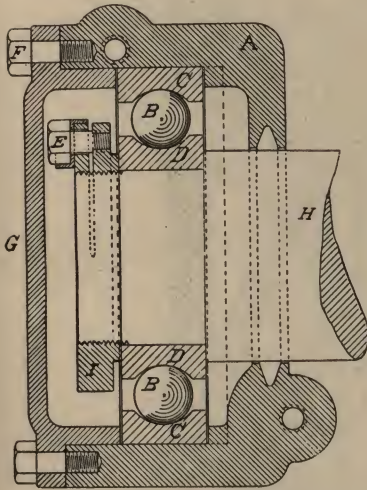


Fig. 1

- A—Box
- B—Balls
- C—Outer Race
- D—Inner Race
- E—Clamp Screw
- F—Cap Screw
- G—Cap for Box
- H—Shaft
- I—Nut
- J—Cap for Box

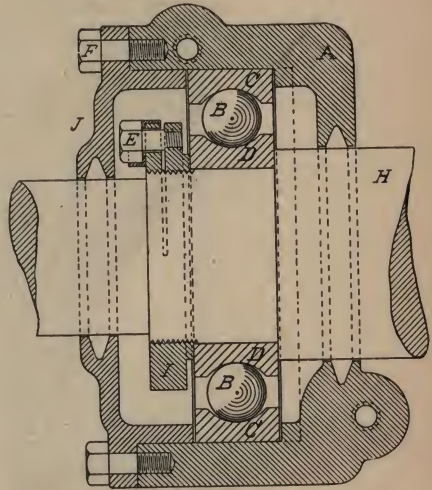


Fig. 2

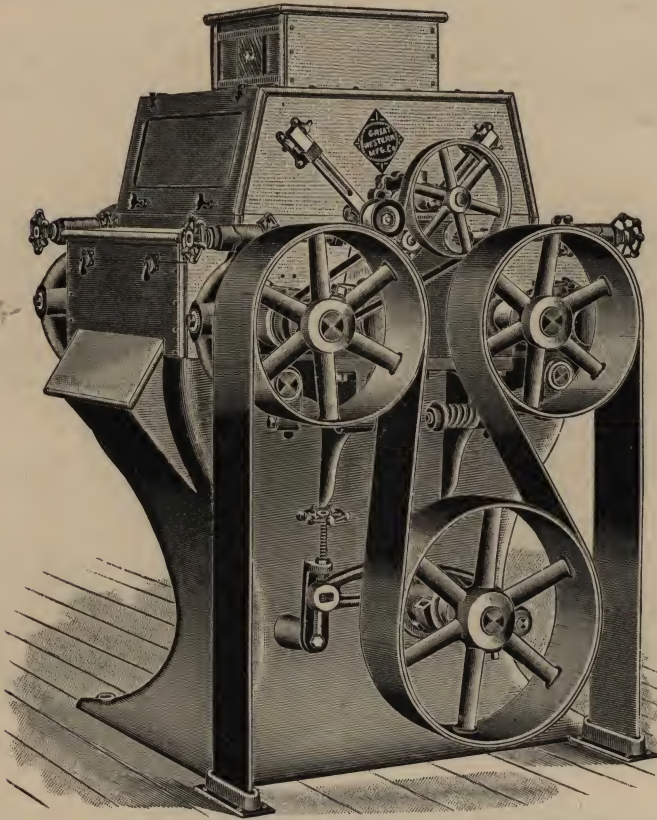
The above cuts show the application of ball bearings to our roll shafts, Fig. 1 representing a box closed at one end for end shafts, and Fig. 2 a box open at both ends for continuous shafts. Note the absence of adjusting cones, cups, nuts and locknuts, which insures against trouble caused by improper adjustments.

We secure the ball bearing to the shaft by making the outer race "C" a close sliding fit in its seat, and the inner race "D" a light driving fit on the shaft.

Price List—Double Roller Mills

WITH BALL BEARINGS

Size of Rolls	Smooth	Divided	Corrugated
9 x 18	1121.00	1133.50	1146.00
9 x 24	1196.00	1213.50	1231.00
9 x 30	1281.00	1303.50	1326.00
9 x 36	1391.00	1418.50	1446.00
10 x 30	1646.00	1671.00	1696.00
10 x 36	1746.00	1771.00	1796.00
10 x 42	1846.00	1871.00	1896.00

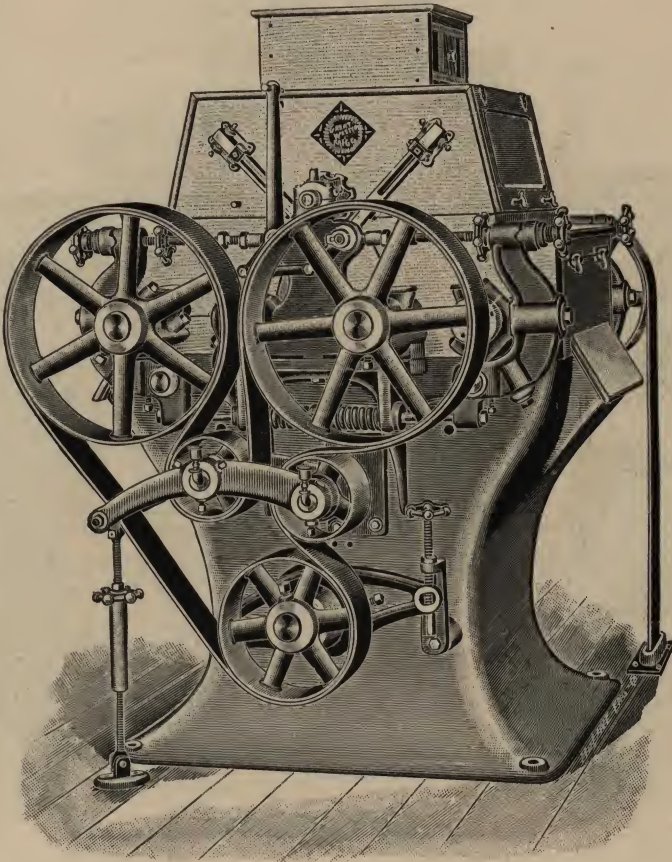


Driving Side. Style A and D Drive.

Double Roller Mills

RING OILING TYPE. WITH 9 INCH ROLLS.

The frame of our 9" Roller Mills is a solid shell casting in one piece. The handsome design and graceful proportions of the frame are fully shown by the cuts. The frame is very heavy, and substantial bracketed side beams or bed plates for supporting the inside rolls and their adjustments are cast in one piece with the frame, at the sides, and form not only rigid supports for these parts, but also stiffen the frame so that the least spring or vibration of the frame is impossible under any working strain to which the mill may be subjected. It is therefore capable of keeping the working parts and adjustments rigidly in their proper positions irrespective of any unevenness of floors or settling of building. Attention is called to the extremely wide base of the frame.



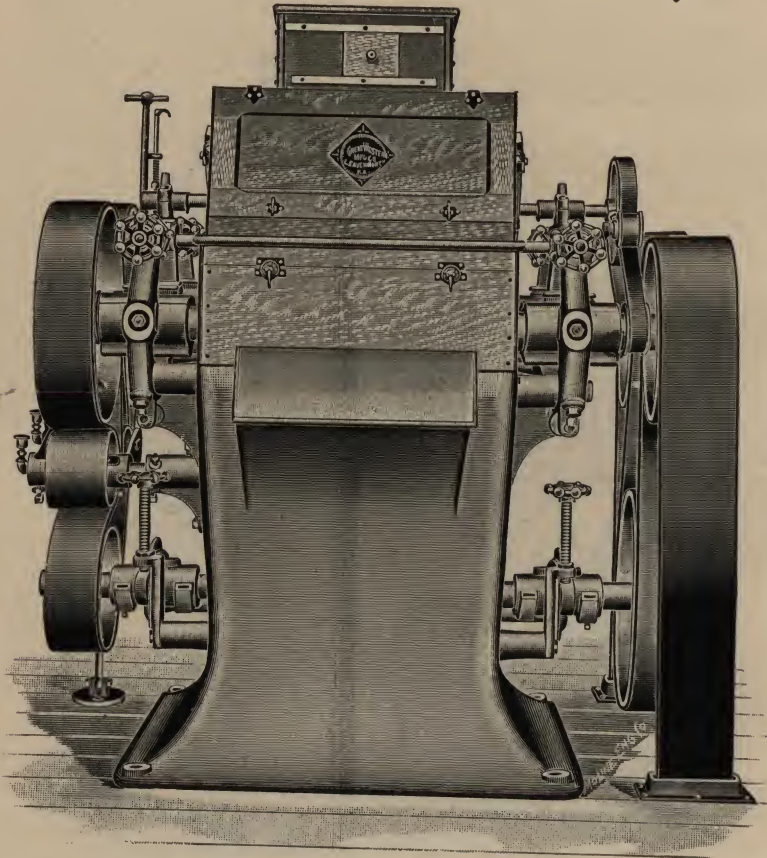
Differential Side. Style D Drive.

Double Roller Mills

RING OILING TYPE. WITH 9 INCH ROLLS.

Two heavy cast iron stands with planed bases are rigidly fastened to the top of planed surfaces on the solid side beams of the frame, one on each side. These two stands are provided with extra long ring-oiling journals, and carry the two inside rolls. The journals carrying these rolls are absolutely rigid, and will not spring and cause uneven granulation when the machine is being worked to full capacity.

The two outside rolls are supported by adjustable arms with extra long ring-oiling bearings. These arms have a vertical adjustment for trammings the rolls and a horizontal adjustment for regulating the grinding set. Both of these adjustments may be easily and quickly made by means of the very simple, durable and accurate mechanism provided for that purpose.



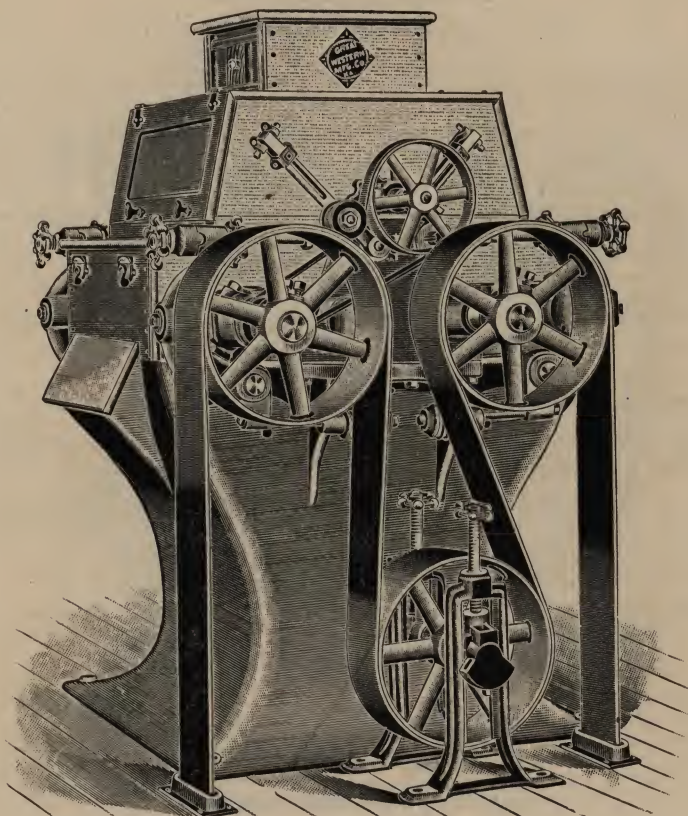
Front View. Style D Drive.

Double Roller Mills

RING OILING TYPE. WITH 9 INCH ROLLS

The grinding set of the rolls is obtained by means of differential screws of accurate design and proportion, which render the operation of the hand wheels, the hubs of which form the nuts, extremely easy and accurate. Self-centering bearings are provided for the hubs, which prevent all cramping, and keep them true in their alignment with the rods. The adjusting device is so perfect that a grinding adjustment of the rolls, micrometric in fineness and accuracy, can readily be secured and maintained. The locking devices for holding the grinding set are perfect in action, and free from liability to derangement.

The spreading lever is conveniently located, and with its connections presents a neat and attractive appearance. The spreading mechanism is so arranged that when the adjustable rolls are spread both ends of the rolls move simultaneously, and the feed is automatically shut off. When the rolls are again thrown together, the original grinding set is maintained and the feed automatically started.



Driving Side. Style C Drive.

Double Roller Mills

RING OILING TYPE. WITH 9 INCH ROLLS.

The relief springs are so arranged that any pressure required for grinding can be brought to bear on the rolls. These springs allow any foreign or hard substance to pass between the rolls without injuring them, and the rolls will instantly return to their original grinding set.

All ring-oiling type machines are regularly provided with the Combs Automatic, Slow Motion, Vibrating Feeder, without question the best and simplest feeder on the market. It is the only automatic shaker feeder that will feed a steady, even stream of any kind of material the entire length of the roll. We arrange the feeder for the first break rolls so that after being once set to allow the proper amount of wheat to pass the feed gate, a uniform flow of material will be obtained throughout the entire mill, and the mill can be regulated to a uniform capacity per hour. A special feed gate is provided for spreading and evenly distributing the stock to the bran rolls. A single movement of the lever spreads the rolls and stops the feed at the same time.

Double Roller Mills

RING OILING TYPE. WITH 9 INCH ROLLS.

A very important feature in the sieve system of milling is attained by the manner in which we apply the roll suction to this machine. The machine is so arranged that two suction spouts can be attached to the top of the housing, one on each side, connecting with a double partition about 2' wide that is built in the center of the Combs feeder, and extends clear across same. This double partition forms a very long and narrow suction spout, and extends down between the two inside rolls. Air is admitted through and under doors provided for examining the ground material underneath the rolls. The opening through which the air is admitted is about $\frac{1}{4}$ " wide, and extends the full length of the door referred to. The air then passes through the falling stock underneath the rolls, carrying with it the hot air, moisture and light dust, and is drawn up through the partition spout mentioned above, and removed from the machine by a suitable suction fan. It will readily be seen that the suction passing through the falling stock in a thin even sheet will remove all hot air, dampness, etc., much more perfectly than can be accomplished by the methods used by others. The advantage of this device will be appreciated, as the moisture-laden air if allowed to pass to the sifting machines tends to rot the woodwork and bolting cloth, and causes the cloths to be pasted, thus reducing the bolting capacity.

Any of the other types of feeders shown on pages 25 to 27 will be furnished if desired.

Belt drives are exclusively used on our mills, and they are practically noiseless.

See pages 8 to 15 for different styles of drives that can be furnished.

Belt tighteners of superior design and adaptability to their work are provided for the several styles of belt drives with which our mills are equipped to meet the demands of different locations. The countershaft of our style A and D drives is independently adjustable for taking up slack of belts. A special belt tightener is provided on the differential side of style D drive by which the belt tension may be equalized at will. This tightener is operated independent of the countershaft movement.

The rolls are "trammed" or leveled by means of a perfect vertical tramping mechanism, and the rolls remain parallel to one another when this adjustment is made.

Smooth rolls are furnished with scrapers or brushes as may be desired.

We use exclusively the genuine Ansonia chilled iron rolls.

Our Roller Mills are constructed of the best obtainable material and workmanship. They are handsomely finished, and are in all respects strictly first class.

"Great Western" Double Roller Mills

RING OILING TYPE. WITH 9 INCH ROLLS.

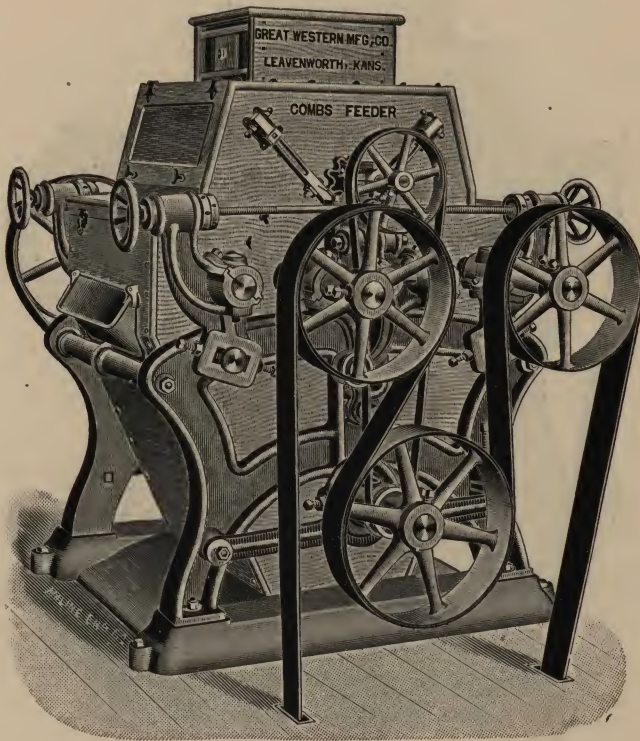
DIMENSIONS AND PRICES

Size of Rolls	Prices			Weight	Length of Driving Belt above Floor
	Smooth	Divided	Corrugated		
9" x 18"	625.00	637.50	650.00	3,750	17'
9" x 24"	700.00	717.50	735.00	4,300	17'
9" x 30"	785.00	807.50	830.00	5,000	17'
9" x 36"	895.00	922.50	950.00	5,950	17'

Size of Rolls	Dimensions			From Floor to Center of Rolls	Speed Fast Rolls	Driving Pulley Fast Rolls
	Height	*Length	†Width			
9" x 18"	5' 8"	4' 2"	4' 7"	3' 3"	450	16 x 6 $\frac{1}{2}$
9" x 24"	5' 8"	4' 2"	5' 1"	3' 3"	450	16 x 7 $\frac{1}{2}$
9" x 30"	5' 8"	4' 2"	5' 10"	3' 3"	450	16 x 7 $\frac{1}{2}$
9" x 36"	5' 8"	4' 2"	6' 7"	3' 3"	450	16 x 8 $\frac{1}{2}$

*Distance through the mill from front to back.

†From end of long journal on one side to end of long journal on other side. Widths given are for style C drive; for style D drive deduct 2 $\frac{1}{2}$ inches.



Driving Side. Style A Drive.

Double Roller Mills

WITH 6 INCH ROLLS.

This cut and the one on the following page represent two views of our Double Roller Mills with 6 inch rolls. These machines have substantial iron frames, fitted to cast iron bases. The different parts of the frame are securely fastened together by lathe-made joints and turned bolts driven in reamed holes, and are packed in babbitt metal run in chambers designed for that purpose, thus making the frame fully as firm and rigid as if cast in one piece. The solid base-plate prevents any liability of displacement of working parts on account of the settling of the building or unevenness of floors.

The adjustments are very simple and effective. A simple method of regulating the grinding and tramping the rolls is provided.

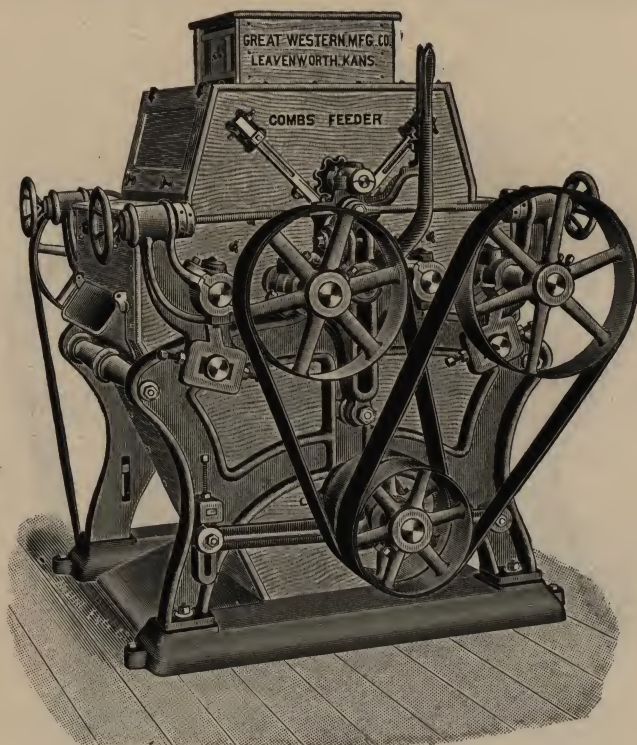
All of the main bearings of the machine are provided with fountain self-oiling boxes, which prevent any waste of oil or heating of journals. This is a very important consideration where close grinding is required. The bearings supporting the rolls are unusually long, and are lined with the best quality babbitt metal. On account of the ample length of bearings our mills can be operated longer without tramping or adjusting than any other make.

Springs are provided to regulate the tension required for holding the rolls to their work in grinding.

The spreading device consists of a shaft passing through the main frame of the machine, provided on each end with an eccentric, and arranged to spread one roll of each pair at one movement of the lever. The rolls can be thrown apart, and together again, without disturbing the grinding set or compressing the springs. Millers will readily appreciate this arrangement.

A countershaft passes through the machine, and on this are placed pulleys for driving the slow rolls. The countershaft is made adjustable for tightening independently the belts on either side of the machine, thus securing to the rolls a positive differential motion.

The machine is driven from one driving pulley, and with one belt. Belts and pulleys for driving the slow rolls are furnished with each machine.



Differential Side. Style A Drive.

Double Roller Mills

WITH 6 INCH ROLLS.

All machines are provided with the Combs Automatic Slow Motion Vibrating Feeder heretofore described.

Our roller mills are constructed of the best obtainable material and workmanship. They are handsomely finished, and are in all respects strictly first-class.

We make this mill in three sizes, viz: 6"x12", 6"x16", and 6"x20".

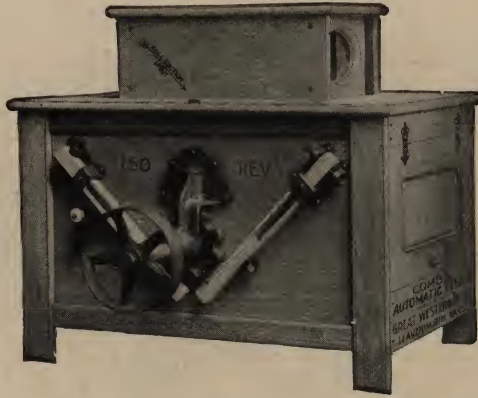
DIMENSIONS AND PRICES

Size of Rolls	Prices			Weight	Length of Driving Belt above Floor
	Smooth	Divided	Corrugated		
6" x 12"	465.00	472.50	480.00	1750	15'
6" x 16"	515.00	522.50	530.00	1800	15'
6" x 20"	565.00	572.50	580.00	2000	15'

Size of Rolls	Dimensions			From Floor to Center of Rolls	Speed Fast Rolls	Driving Pulley Fast Rolls
	Height	*Length	†Width			
6" x 12"	4' 11"	3' 6"	3' 10"	2' 11"	600	10 x 4½
6" x 16"	4' 11"	3' 6"	4' 2"	2' 11"	600	10 x 5½
6" x 20"	4' 11"	3' 6"	4' 8"	2' 11"	600	10 x 5½

*Distance through the mill from front to back.

†From end of long journal on one side to end of long journal on other side.



Combs Automatic Slow Motion Feeders

The cut represents the Combs Automatic Slow Motion Force Feeder, designed to meet the demand for a simple device that will deliver all kinds of stock to the roll in a continuous, even stream.

This Feeder is so constructed that each feed board has independent adjustments, which permit the softest middlings to be fed to one pair of rolls in a thin, even stream the entire length, while to the pair of rolls on the opposite side can be fed the coarsest stock in the mill. This is accomplished by the wide range of adjustment peculiar to this Feeder, by means of which the feed board can be adjusted from the faintest tremor to the full throw of the cams by simply turning two thumb-screws. These adjustments are all outside the housing, and are accomplished by means of two hickory springs, one at each end of the feed board, which are the only springs used in the construction of this Feeder. There are no metal springs to break and wear out.

Another advantage that millers will appreciate in the Combs Feeder is the ease with which a roll suction can be attached. The Feeder is so constructed that the air current is drawn from beneath the chilled iron rolls into an air space between the two inside rolls, up through the housing, and conducted to the dust collector. In this manner the stock is acted upon as it passes from the rolls in a thin, even stream, and the hot air removed with a very light suction. This feature is a very desirable one. The suction spouts are placed on the top and at each side of the feeder housing, as shown in cut.

The speed of the shaft on which the cams that vibrate the feed board are placed should be 150 revolutions per minute. This slow speed makes the Feeder a very durable machine as compared with other feeding devices.

We are prepared to furnish this Feeder for any make and size of roller mill.

We claim the following strong points for the Combs Feeder.

Substantial in construction.

Few and simple adjustments.

Adapted to any make and style rolls.

Feeds even stream full length of rolls.

All adjustments on outside and easily reached.

Action of feeder boards light or severe, at will, either side independent of the other.

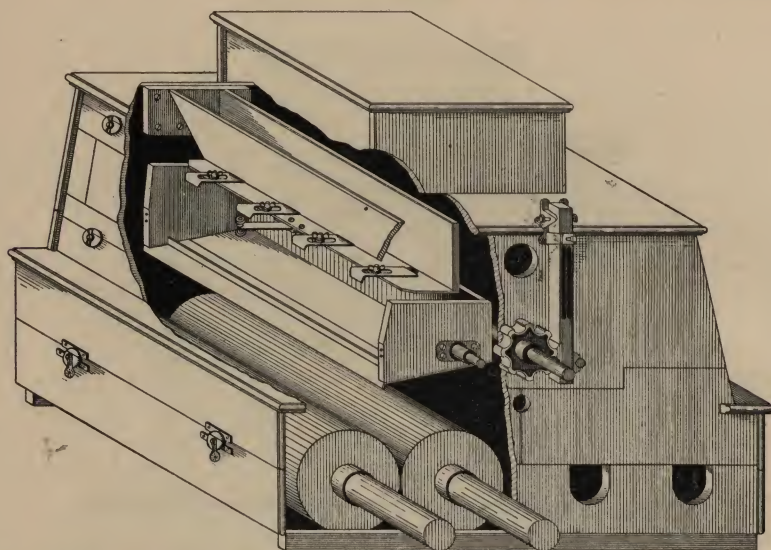
No trouble to adjust.

Hundreds of them in daily use in all parts of the country.

FEEDERS FOR FOUR ROLLER MILLS

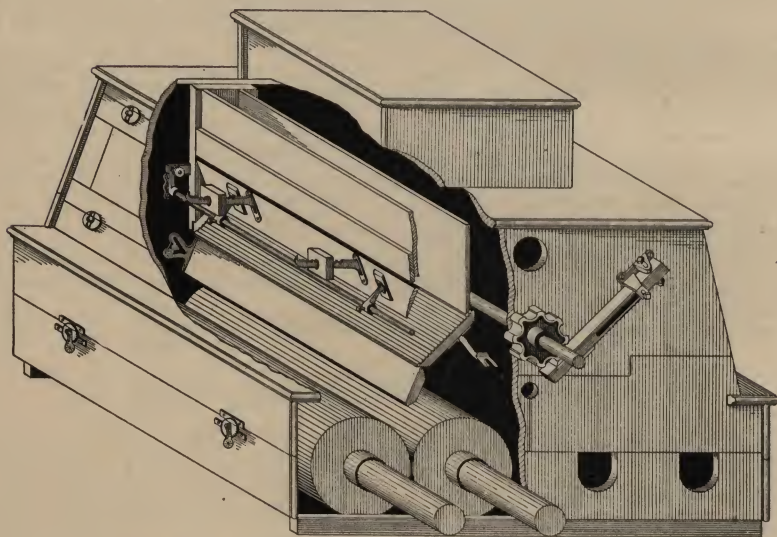
6 x 12 Rolls.....	34.00	9 x 11 Rolls.....	37.00
6 x 15 Rolls.....	35.00	9 x 14 Rolls.....	38.00
6 x 16 Rolls.....	36.00	9 x 18 Rolls.....	40.00
6 x 18 Rolls.....	37.00	9 x 24 Rolls.....	42.00
6 x 20 Rolls.....	38.00	9 x 30 Rolls.....	44.00
7 x 14 Rolls.....	36.00	9 x 36 Rolls.....	46.00
7 x 16 Rolls.....	37.00	10 x 30 Rolls.....	48.00
7 x 18 Rolls.....	38.00	10 x 36 Rolls.....	55.00
7 x 20 Rolls.....	39.00	10 x 42 Rolls.....	62.00
7 x 24 Rolls.....	40.00		

Above prices cover Feeder as shown in cut. Housings between mill frame and Feeder extra.
Drive Pulleys, Idlers, Tighteners, etc., also extra.



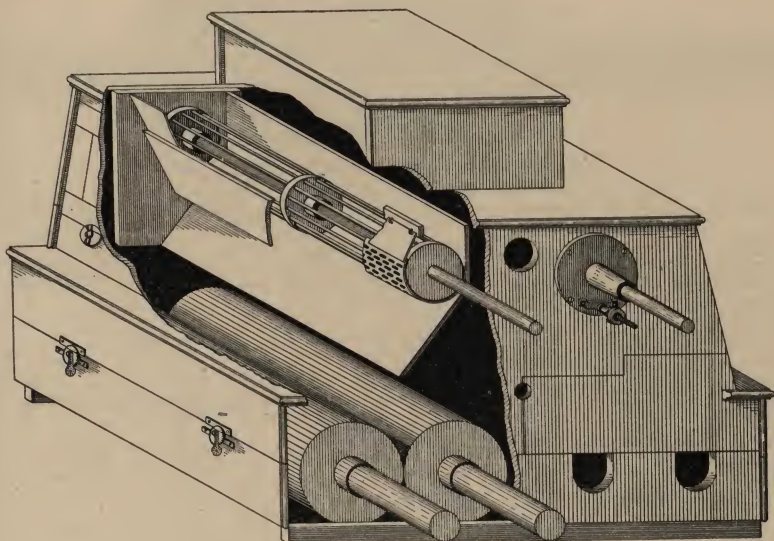
**Great Western Rigid Slow Motion Shaker Feeder
For First Break**

See page 28.



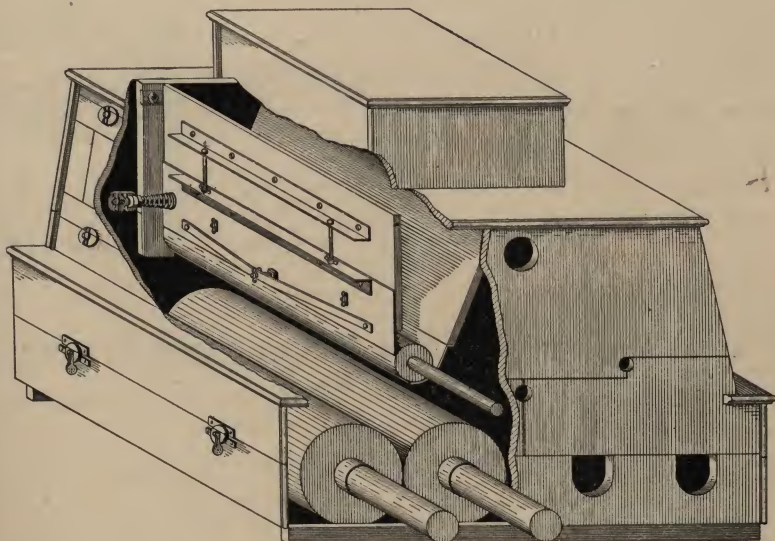
Combs Automatic Slow Motion Feeder

For all reductions excepting first break. See pages 6, 7 and 25.



Squirrel Cage Feeder

Suitable for bran rolls, but may be used on two last breaks in four, five and six break mills. See pages 6 and 28.



Great Western Roll Feeder

Can be adjusted to make either rigid or automatic feeder. Suitable for all reductions excepting first break. See pages 6 and 28.

Great Western Roll Feeders

See cut on page 27 and description on page 6. Prices are for feeders for four roller mills.

9 x 18 Rolls.....	60.00
9 x 24 Rolls.....	63.00
9 x 30 Rolls.....	66.00
9 x 36 Rolls.....	69.00
10 x 30 Rolls.....	72.00
10 x 36 Rolls.....	82.50
10 x 42 Rolls.....	93.00

Housings between mill frame and center of rolls extra. Drive Pulleys, Idlers, Tighteners, etc., also extra.

Squirrel Cage Feeders

See cut on page 27 and description on page 6. Prices are for feeders for four roller mills.

9 x 18 Rolls.....	60.00
9 x 24 Rolls.....	63.00
9 x 30 Rolls.....	66.00
9 x 36 Rolls.....	69.00
10 x 30 Rolls.....	72.00
10 x 36 Rolls.....	82.50
10 x 42 Rolls.....	93.00

Housings between mill frame and center of rolls extra. Drive Pulleys, Idlers, Tighteners, etc., also extra.

Great Western Rigid Slow Motion Shaker Feeders For First Break

See cut on page 26. Prices are for feeders for four roller mills.

9 x 18 Rolls.....	60.00
9 x 24 Rolls.....	63.00
9 x 30 Rolls.....	66.00
9 x 36 Rolls.....	69.00
10 x 30 Rolls.....	72.00
10 x 36 Rolls.....	82.50
10 x 42 Rolls.....	93.00

Housings between mill frame and center of rolls extra. Drive Pulleys, Idlers, Tighteners, etc., also extra.

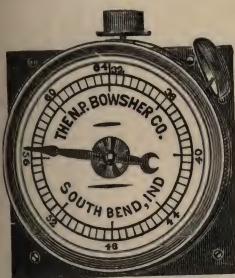


Chilled Iron Grain Rolls

MADE TO ORDER FOR ANY MAKE OF ROLLER MILL.

LIST PRICES PER PAIR

Size	Smooth	Corrugated	Weight of Each Roll Boxed	Size	Smooth	Corrugated	Weight of Each Roll Boxed
6 x 10	93.00	100.00	110	10 x 10	119.50	129.00	275
6 x 12	98.75	106.25	130	10 x 30	268.00	289.00	785
6 x 15	106.50	114.00	155	10 x 36	317.00	342.00	935
6 x 16	110.00	119.50	165	10 x 42	368.00	397.00	1090
6 x 18	118.75	127.50	175	12 x 18	314.65	339.85	775
6 x 20	127.50	136.50	200	12 x 24	385.00	415.80	970
6 x 24	136.50	145.50	240	12 x 30	465.00	501.20	1150
7 x 14	122.50	131.00	190	14 x 12	232.00	250.50	590
7 x 16	127.00	136.00	220	14 x 16	315.00	340.20	820
7 x 18	131.50	142.00	240	14 x 18	341.65	369.00	905
7 x 20	140.00	152.00	260	14 x 20	358.55	387.25	985
7 x 24	150.00	163.00	300	14 x 24	427.40	461.60	1150
9 x 14	138.00	150.00	311	14 x 30	512.20	553.25	1366
9 x 18	156.50	170.00	385	18 x 18	832.30	898.80	1720
9 x 24	185.00	200.00	490	18 x 24	890.00	961.20	2130
9 x 30	215.00	235.00	600	18 x 30	1020.00	1101.60	2540
9 x 36	246.00	267.00	700				



Bowsher Motion Indicator

This device costs little, and is almost indispensable in a well-regulated flouring mill. It shows accurately the speed at which the machinery is running, and requires no attention except oiling every two or three days. It instantly gives an alarm when running too fast or too slow. It will show when a belt is off, when there is a choke, or anything runs empty. We cordially recommend it.

	Without Alarm	With Alarm
Single Dial Indicator.....	25.00	27.50
Double Dial Indicator.....	30.00	32.50

In ordering always give the diameter and average speed of the shaft to which the Indicator will be belted.

Peerless Flour Feeder and Mixer

FOR FEEDING CHOKE-UPS, MIXING FLOUR, ETC.

Size	Price	Height	Space on Floor	Capacity of Hopper	Pulley	Revolutions
1	15.00	2' 10"	18" x 24"	50 lbs.	10 x 2	50 to 70
2	25.00	4' 0"	22" x 28"	200 lbs.	10 x 2	50 to 70





Prices for Grinding and Corrugating Rolls

LIST PRICES PER PAIR

Size	Regrinding Smooth Rolls	Corrugated Rolls Ground Smooth	Corrugated Rolls Ground and Recorrugated	Smooth Rolls Reground and Corrugated
6 x 10	5.00	7.00		
6 x 12	6.00	8.00	10.00	8.00
6 x 15	7.50	9.50	12.00	10.00
6 x 16	8.00	10.50	14.00	12.00
6 x 18	9.00	12.00	15.00	12.50
6 x 20	10.00	13.00	16.00	13.00
			18.00	15.00
7 x 9	5.00	7.00		
7 x 12	6.75	9.00	11.00	9.00
7 x 14	8.00	10.50	13.50	11.25
7 x 15	8.00	10.50	15.00	12.50
7 x 16	8.50	11.00	15.00	12.50
7 x 18	9.00	11.50	16.00	13.50
7 x 20	9.75	12.50	17.00	14.50
7 x 24	10.50	13.50	18.25	15.75
			19.50	17.00
7½ x 20	11.00	14.00		
7½ x 24	11.50	16.00	19.50	16.50
7½ x 30	13.50	17.50	24.00	20.00
			26.50	22.50
9 x 8	6.00	8.00	12.00	10.00
9 x 11	8.50	11.25	15.50	12.75
9 x 14	9.00	11.50	16.00	13.50
9 x 15	9.50	12.00	17.00	14.50
9 x 18	10.00	13.00	20.00	17.00
9 x 24	12.00	16.00	25.00	21.00
9 x 30	15.00	20.00	30.00	25.00
9 x 36	18.00	24.00	35.00	29.00
10 x 10	10.00	16.00	20.00	18.00
10 x 30	16.50	22.00	33.00	27.50
10 x 36	20.50	27.50	40.50	33.50
10 x 42	25.50	34.00	49.50	41.00
12 x 20	20.00	25.00	40.00	32.00
12 x 24	24.00	30.00	44.00	36.00
12 x 30	30.00	36.00	50.00	42.00
12 x 36	36.00	42.00	56.00	48.00
14 x 12	13.00	18.00	26.00	20.00
14 x 16	17.00	27.00	35.00	27.00
14 x 20	22.00	32.00	44.00	34.00

Price for one roll, one-half the price per pair.

For truing up roll journals an extra charge is made.

Prices for grinding and corrugating rolls of odd sizes will be quoted on application.

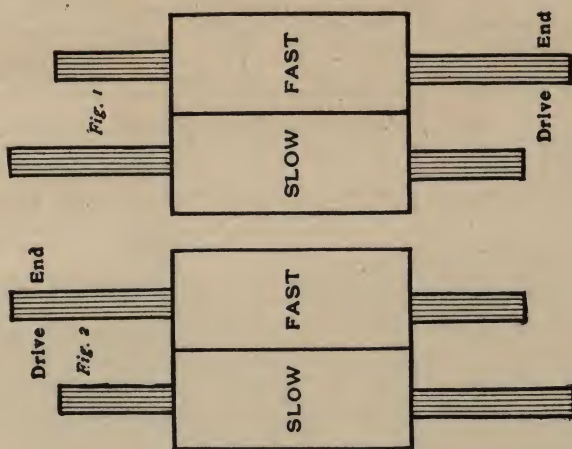
Special corrugations, special prices. (Corrugations six cuts to the inch and coarser are considered special corrugations).

Prices for corrugating smooth rolls that do not need regrinding same as prices in second column above for regrinding corrugated rolls.

We have a number of machines for doing this class of work, both at Leavenworth, Kans., and Kansas City, Mo., arranged to run night and day, therefore are prepared to grind and corrugate rolls with the least possible delay.

When sending rolls to us, box them carefully and mark boxes plainly with shipper's name and shipping address. Advise us by mail when rolls are shipped.

In sending rolls to be re-corrugated, it is very necessary that the most careful instructions be given. Will send diagrams and blanks for this purpose containing full particulars.

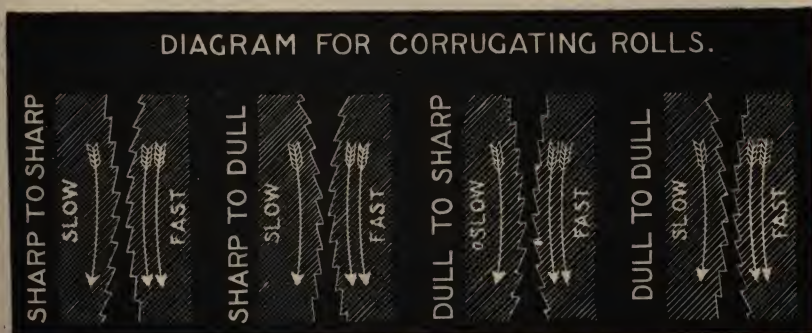


Directions for Marking and Shipping Rolls To Be Dressed

When shipping Rolls, make a diagram of each pair of Rolls sent, and mark it A, B or C respectively, if more than one pair is sent. Turn about the diagrams on this page until you see your Rolls as they set in the frame, and make your diagram of that pair of rolls to correspond with it, and number it No. 1 or 2, as the case may be, and also mark on it which is the FAST Roll and on which end is the drive pulley.

Mark on each box, plainly, the shipper's name and address, the LETTER of the pair to which it belongs, and the word "FAST" or "SLOW." Mark each pair of Rolls with the same letter as on the diagram of it. Send diagram to us, and state what work you desire done on each pair.

Quite often millers will send their rolls to the nearest shop, to save freight, without investigating as to its ability to turn out first class work. These shops are generally small, often having but one grinder and one corrugator that are not of the latest pattern and idle part of the time. Such a shop cannot be expected to turn out as high grade work as one that builds roller mills the year through, and is busy all the time grinding and corrugating rolls. Years of experience have made our workmen very skillful, and you are thus sure of perfect work. Why run the risk of receiving imperfect work for the sake of a slight saving in freight?



This diagram indicates the direction rolls must run in order to make dull to dull, sharp to sharp, etc., etc.

Great Western Automatically Balanced Controllable Sifter

In the rapid development of sifting machines for use in the manufacture of flour, there has grown up a need for a machine suitable for use in mills that demand a bolting machine provided with every modern improvement and convenience; especially in the case with mills that run continuously day and night for a week or more without interruption. To meet this demand requires a machine capable of being built of either very large or small capacity, which is well designed and well constructed in all its details. The material must be of the best, and the mechanism must be so designed and constructed that it may run without interruption for an indefinite time.

Not only is this true, but in addition to its mechanical excellence, the machine must be fitted with such devices as are necessary to enable the miller in charge to absolutely control the bolting under all the changing conditions of wheat such as are brought about by changes of weather and the varying character of the grain.

The Great Western Automatically Balanced Controllable Sifter fully meets this demand.

The device for cutting off the flour from any sieve, and sending it to the head of the next sieve handling the same class of stock, is peculiar to this machine, and the provision made for the inspection of the flour from any sieve desired, as well as an absolutely automatic balancing feature, is found in no other sifter.

The machine is made absolutely self-balancing by a simple and effective method that entirely does away with the balance wheels or counterweights required on other types of gyrating or sifting machines.

Four sieve boxes are connected together in diagonal pairs; each pair of sieve boxes is connected together with two cast iron bridgetrees, one bridgetree located near the bottom of the sieve boxes, and the other near the top of same. When the machine is assembled one pair of sieve boxes, with its connecting bridgetrees, is set at right angles to the other pair. Gyratory motion is imparted to the machine by the combination of the weight of two sets of sieve boxes eccentrically placed on a vertical revolving shaft free to move laterally in any direction. The vertical shaft is provided with two pairs of oppositely disposed cranks journaled in ball and socket bearings located centrally in the bridgetrees.

This shaft extends below the bottom of the sieve boxes, and is supported by a simple mechanical anti-frictional device contained in the pot which is bolted to the floor and remains at all times filled with oil. An overflow provides for any surplus of oil. The mechanical device referred to, permits the shaft when revolving, to move $\frac{3}{4}$ " in any direction, from its normal axis.

With this construction, when the machine is in motion one pair of sieve boxes balances the other pair, because it is at all times gyrating in the opposite direction. Furthermore, the flexible reeds supporting the sieve boxes from above prevent any vibration being transmitted to the building, because the reeds supporting one pair of sieve boxes swing in the opposite direction to those supporting the other pair; consequently all tendency of the machine to sway the building is overcome.

On account of the gyratory motion being imparted to our machine by a heavy steel crank shaft, the throw of the machine is fixed, the boxes always traveling in a true circle. This can only result in even and uniform bolting.

All other makes of sifting machines have sieve boxes and supporting reeds (or rods) that gyrate in one direction only, and necessarily communicate a swaying motion to the building. It will be seen that our construction overcomes this difficulty. All other makes of sifting machines require heavy balance wheels or weights to counterbalance the sieve boxes when the machine is gyrating. The fact that these counterbalance weights on other machines have to be adjusted from time to time, demonstrates our claim that such machines are not self-balancing.

Our Automatically Balanced Controllable Sifter requires no balance wheels, counterweights, springs or cushions of any kind, and is absolutely automatically balanced, no matter what load is being carried or at what speed the machine is run. The elimination of heavy balance weights, and the fact that one-half of the flexible reeds gyrates in the opposite direction from the other half, permit the use of lighter supporting timbers overhead than would be possible to use on any other make of machine.

Should at any time the floor of the building, to which the flexible reeds that support the sieve boxes are connected, settle and throw any of the sieve boxes out of level, the four ball and socket journal boxes will automatically line themselves to the journals on the crank shaft, for the reason that the lower ends of the reeds carrying each sieve box are connected as stated above, to the center of the sieve boxes both horizontally and vertically, and the sieve boxes, ball and socket journal boxes, and the crank shaft, automatically at all times adjust themselves the one to the other. This prevents hot bearings.

When starting and stopping our machines, the motion is at all times as smooth and regular as when running at full speed. There is no twisting motion or strain. All other so-called self-balancing sifters have to be provided with springs, cushions or some similar device, to restrict the abnormal throw of the machine when starting or stopping. These springs often break and give trouble, and, when used, the machine even running at normal speed, has a tendency to "buck" when starting and stopping.

Our machine requires no such restraining devices when starting or when stopping, for the reason that the sieve boxes absolutely automatically balance one another when running at either high, low, or varying speeds.

On account of the happy idea of balancing one pair of sieve boxes with the weight of the other pair, there is no abnormal throw to our machine; therefore, no restraining means, which is an important adjunct to all other so-called self-balancing sifters, is necessary. On the other hand, all that is required is to relieve the crank shaft of any pull that might be occasioned by the drive belt. This is easily taken care of by our simple belt equalizer.

When the machine is belted ready for operation, the pull of the driving belt is on a small vertical tightener bolted to the floor, and not the crank shaft. Should the sifter for any reason have a tendency to lunge, it will be reliably restrained by the belt equalizer.

In shipping these machines, the four sieve boxes are crated separately and the driving mechanism is securely packed in boxes and crates of a convenient size to handle.

The installation of the machine in the mill is easily and simply accomplished. The crank shaft with its bridgetrees and other parts is first set up; then the four sieve boxes are bolted to the bridgetrees, and the reeds carrying the sieve boxes are attached to same and the support overhead.

The fact that one pair of sieve boxes counterbalances the other pair without the use of any balance wheels or weights, allows us to build larger machines than it is possible for any other



GREAT WESTERN AUTOMATICALLY BALANCED CONTROLLABLE SIFTER



GREAT WESTERN SIFTER
ONE SIEVE BOX REMOVED—SHOWING METHOD OF LUBRICATION

Great Western Automatically Balanced Controllable Sifter

manufacturer to turn out. Millers wanting machines to handle greater capacity than others can supply, will do well to take the matter up with us.

Owing to the fact that we do not load the machine down with heavy balance wheels or weights, the driving mechanism of our machine weighs considerably less than any other machine, having same cloth surface. At the same time, all parts of our driving mechanism are made extra strong and heavy so as to insure durability. The saving in weight of moving parts means less power is required to drive the machine.

The machine is equipped with four independent sieve cases. Any number of reductions from one to eight can be handled on one machine. As regularly made, each sieve case has one compartment, making four compartments in one machine. When necessary, this arrangement may be modified by subdividing any or all the sieve cases into two compartments each. The framework of the sieve cases is of seasoned hard maple, all joints being mortised and secured with joint bolts. Through binder rods extend from the outside corners of the sieve box frames to the ends of the cast iron bridgetrees, and, in addition, diagonal brace rods extend from the center of the bridgetrees to the two outside corners of the sieve cases, rigidly binding the sieve cases to the bridgetrees and preventing any lateral strain or springing, thus increasing the strength of the structure. The sieve cases are lined with tongued-and-grooved kiln-dried lumber, which is screwed fast to the inside of the hardwood frames. The cases are further relined with heavy cloth to prevent dusting out.

Removable panel doors made dust-tight with elastic packing are provided for each sieve case. These doors are held in place by clamp buttons and through binder rods that extend from the outside face of the doors through the case to the back side of the same, thus securely clamping the doors in place. Tail nuts are provided on the rods and buttons, and, when desired, the doors may be removed in a moment's time.

Each compartment contains a series of sieves arranged one above the other. Under each sieve is a gathering or carry-board to collect the sifted product. The sieves are fitted into dust-proof grooves which are absolutely tight and never leak.

Any sieve may be instantly removed without disturbing or removing any other sieve. The sieves are interchangeable. A few extra sieves kept on hand will enable the miller to quickly exchange a newly clothed sieve for one on which the cloth is worn.

An adjustable cut-off is placed under every flour sieve; this device taking the place of the ordinary gather-board. The construction is very simple, and the device is not liable to derangement. Four large openings are provided in the gather-board at the head of the sieve, and one at the tail. The cut-off, which is composed of a flat piece of sheet steel, is so made that when the four openings in one end of the cut-off are closed, the one in the opposite end is open. The cut-off is operated by a T head on a small rod, which extends through the side of the sieve case. The cut-off has a locking device which holds it safely in the desired position, and it can be instantly changed while the machine is in motion.

With this method the original classification of stocks is not lost. Cuts are not sent to a lower grade of stock for re-dressing, but are finished in their original class. This feature enables us under all circumstances to keep together the entire product of each reduction until it is properly dressed, resulting in a larger percentage of pure flour than could be secured by any other known method. The Automatically Balanced Controllable Sifter is the only sifting machine which embodies this important feature.

THE CUT-OFF IS INDISPENSABLE

When a hole is found in any flour sieve, the sieve can be instantly cut out.

When the grade of flour is lowered, owing to insufficient stock; in this case one or more sieves are cut out, thus loading the sieves properly and quickly bringing up the grade.

When change in quality or temper of wheat calls for a change in the bolting.

When change of weather calls for increase or decrease of bolting silks in use.

When changing from soft to hard wheat or from hard to soft. In selecting a machine for the capacity desired, a machine of sufficient cloth surface to handle the capacity when grinding soft wheat is installed. To change to hard wheat it is only necessary to cut out a few of the sieves with fine cloth. It therefore, requires only a few minutes to change mill while in operation from hard to soft wheat, or soft to hard, as the occasion demands.

The indispensable auxiliary to the cut-off is the Flour Inspection Device. By its use the miller can quickly locate a defective cloth which is specking the flour, and cut it out.

The stock from each reduction enters the sifter through cloth spouts, and is delivered onto the head of one of the top sieves. A slight inclination of the sieve conducts the tailings to the head of the next sieve below, the sieves being arranged one below the other, with heads and tails alternating. A sufficient number of sieves are used in this operation to make a clean separation and to insure dry, well dusted tailings. The tailings are directed to a vertical duct, which in turn sends to spouts leading to rolls, purifier or otherwise, according to the nature of the stock. The siftings from the above mentioned sieves are controlled by gather-boards and sent down through a duct to a second set of scalping sieves, or direct to the flouring sieves, as the nature of the stock may require. With this machine having a high column of sieves, it is possible to make complete separation of all the products of any one reduction without re-elevating, which is an important consideration. Practical experience determines the number and size of sieves required for a given class and quantity of stock. We aim to supply ample cloth surface, depending upon the adjustable cut-offs, by the use of which the amount of cloth surface at any time will be regulated to suit existing conditions. For instance, the middlings reduction will first be scalped through several sieves clothed with number 80 or number 86 gritz gauze. The stock bolted through this cloth passes to the flour sieves, and the finished flour from each flour sieve is discharged immediately away from the machine.

With this arrangement no stock is permitted to travel over the flour sieves which has not first been bolted through cloth fine enough to separate any impurities from the stock going to the flour sieves. The middlings and the impurities do not travel over the flour sieves.

The Automatically Balanced Controllable Sifter is built upon honor. We have spared no labor or expense in its design and construction. We offer it to the milling public as being nearer perfection than any of its predecessors. Full information as to capacity and prices will be furnished on application.

Great Western Automatically Balanced Controllable Sifter

SIZES AND DIMENSIONS

No.	Total Number of Sieves	Floor Space	Height from floor to bottom of Sieve Box	Height from floor to top of Sieve Box	Size of each Sieve Box	Height from floor to center of Driving Pulley	Width of Belt	Diam. of Pulley	Speed	Approximate Shipping Weight
5	20	6' 7"	22"	4' 5"	36½" wide	12"	3"	20"	180	3200
6	24	x	or	or	30½" deep					
7	28	7' 7"	more	more	2' 7" high					
8	32									
9	36	6' 7"	22"	5' 5"	36½" wide	12"	3"	20"	180	4300
10	40	x	or	or	30½" deep					
11	44	7' 7"	more	more	3' 7" high					
12	48									
13	52	6' 7"	18"	6' 1"	36½" wide	12"	3½"	20"	180	4700
14	56	x	or		30½" deep					
15	60	7' 7"	more		4' 7" high					
16	64									
17	68	6' 7"	18"	7' 1"	36½" wide	12"	3½"	20"	180	5100
18	72	x	or		30½" deep					
19	76	7' 7"	more		5' 7" high					
20	80									
21	84	6' 7"	18"	8' 1"	36½" wide	12"	4"	20"	180	5400
22	88	x	or		30½" deep					
23	92	7' 7"	more		6' 7" high					
24	96									
25	100	6' 7"	18"	9' 1"	36½" wide	12"	4"	24"	180	5700
26	104	x	or		30½" deep					
27	108	7' 7"	more		7' 7" high					
28	112									
29	116	6' 7"	18"	10' 1"	36½" wide	12"	4½"	24"	180	6100
30	120	x	or		30½" deep					
31	124	7' 7"	more		8' 7" high					
32	128									
33	132	6' 7"	18"	11' 1"	36½" wide	12"	4½"	24"	180	6600
34	136	x	or	or	30½" deep					
35	140	7' 7"	more	or	9' 7" high					
36	144			more						
37	148	6' 7"	18"	12' 1"	36½" wide	12"	5"	24"	180	7100
38	152	x	or	or	30½" deep					
39	156	7' 7"	more	or	10' 7" high					
40	160			more						

NOTE—The measurement 7' 7" is when facing the doors of the machine.

Special larger sizes built to order.

Floor space required by sieve boxes 6' 7" x 7' 7".

Height from floor to top of sieve box figured on basis of bottom of sieve box being located from floor as indicated in table.

If bottom of sieve box is located a greater distance from floor than shown in the table, the height to top of sieve box will be increased correspondingly.

The floor space required by sifter when gyrating 7' 5" x 8' 5".

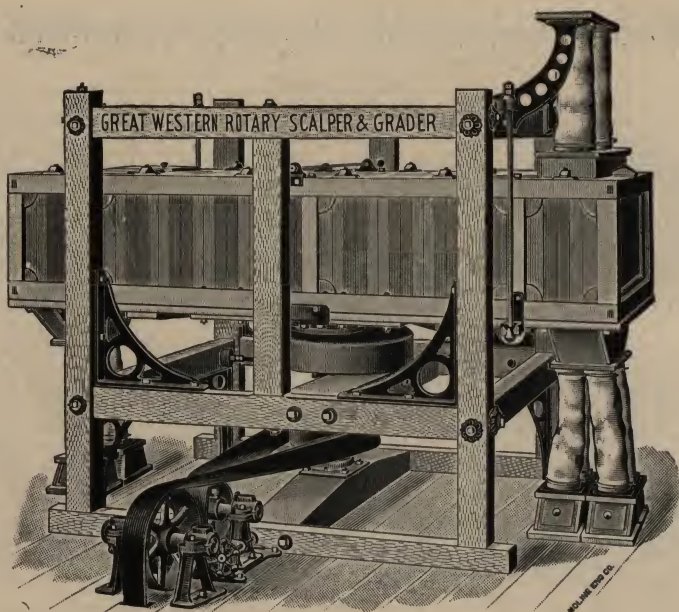
All sieve frames measure 24 x 26½ inches.

Four reductions are provided for in the standard construction, but by dividing the sieves in any of the four sieve cases with partitions, two reductions can be handled in any sieve case, thus adapting the machine for handling 5, 6, 7 and 8 reductions. We can in special cases also furnish machines for handling 9 and 10 reductions, if required. Less than four reductions can be handled on one machine by dividing the stream or streams of stock going to the machine and sending same to two or more of the sieve boxes.

Great Western Automatically Balanced Controllable Sifter**PRICE LIST**

No.	Four Reductions or less	Five Reductions	Six Reductions	Seven Reductions	Eight Reductions	Nine Reductions	Ten Reductions
5	680.00	687.00	694.00	701.00	708.00	715.00	722.00
6	736.00	744.00	752.80	761.20	769.60	778.00	786.40
7	792.00	801.80	811.60	821.40	831.20	841.00	850.80
8	848.00	859.20	870.40	881.60	892.80	904.00	915.20
9	904.00	916.60	929.20	941.80	954.40	967.00	979.60
10	960.00	974.00	988.00	1002.00	1016.00	1030.00	1044.00
11	1016.00	1031.40	1046.80	1062.20	1077.60	1093.00	1108.40
12	1072.00	1088.80	1105.60	1122.40	1139.20	1156.00	1172.80
13	1128.00	1146.20	1164.40	1182.60	1200.80	1219.00	1237.20
14	1184.00	1203.60	1223.20	1242.80	1262.40	1282.00	1301.60
15	1240.00	1261.00	1282.00	1303.00	1324.00	1345.00	1366.00
16	1296.00	1318.40	1340.80	1363.20	1385.60	1408.00	1430.40
17	1352.00	1375.80	1399.60	1423.40	1447.20	1471.00	1496.80
18	1408.00	1433.20	1458.40	1483.60	1508.80	1534.00	1559.20
19	1464.00	1490.60	1517.20	1543.80	1570.40	1597.00	1623.60
20	1520.00	1548.00	1576.00	1604.00	1632.00	1660.00	1688.00
21	1576.00	1605.40	1634.80	1664.20	1693.60	1723.00	1752.40
22	1632.00	1662.80	1693.60	1724.40	1755.20	1786.00	1816.80
23	1688.00	1720.20	1752.40	1784.60	1816.80	1849.00	1881.20
24	1744.00	1777.60	1811.20	1844.80	1878.40	1912.00	1945.60
25	1800.00	1835.00	1870.00	1905.00	1940.00	1975.00	2010.00
26	1856.00	1892.40	1928.80	1965.20	2001.60	2038.00	2074.40
27	1912.00	1949.80	1987.60	2025.40	2063.20	2101.00	2138.80
28	1968.00	2007.20	2046.40	2085.60	2124.80	2164.00	2203.20
29	2024.00	2064.60	2105.20	2145.80	2186.40	2227.00	2267.60
30	2080.00	2122.00	2164.00	2206.00	2248.00	2290.00	2332.00
31	2136.00	2179.40	2223.80	2266.20	2309.60	2353.00	2396.40
32	2192.00	2236.80	2281.60	2326.40	2371.20	2416.00	2460.80
33	2248.00	2294.20	2340.40	2386.60	2432.80	2479.00	2525.20
34	2304.00	2351.60	2399.20	2436.80	2494.40	2542.00	2589.60
35	2360.00	2409.00	2458.00	2507.00	2556.00	2605.00	2654.00
36	2416.00	2466.40	2516.80	2567.20	2617.60	2668.00	2718.40
37	2472.00	2523.80	2575.60	2627.40	2679.20	2731.00	2782.80
38	2528.00	2581.20	2634.40	2687.60	2740.80	2794.00	2847.20
39	2584.00	2638.60	2693.20	2747.80	2802.40	2857.00	2911.60
40	2640.00	2696.00	2752.00	2808.00	2864.00	2920.00	2976.00

We have a large, handsomely illustrated booklet fully describing in detail the various parts of our AUTOMATICALLY BALANCED CONTROLLABLE SIFTER. If you do not already have a copy of this booklet No. 60, it will pay to send for one. You will find it interesting reading.



Great Western Rotary Scalper and Grader

This Sieve Machine is designed expressly for the purpose of scalping the breaks and grading the middlings in cases where reels or flour dressers are used for handling the reductions from the smooth rolls.

The cut shows the machine with pulley located on upright shaft to receive motion. We also, when desired, furnish the machine with countershaft, boxes, gears, and pulley to receive motion on either side of the machine below the sieve box.

We build various sizes to handle from one to ten reductions. Two sieves are used for handling each reduction. Each break is spouted to the top sieve, the break chop passes through the sieve, and the other stock passes over the tail of the sieve for further reduction. The chop bolted through the top sieve falls on a conveyor sieve which delivers it to the bottom bolting sieve, on which either one or two grades of middlings and the break flour are separated. In case stock from smooth rolls is being handled, two separations only will be made on the lower sieve. The bottom sieve conveyor collects the different products and delivers them from the machine. The bolting surface of the sieves is smooth and unobstructed, and the same cloth-cleaning device is used as on our Automatically Balanced Controllable Sifter.

DIMENSIONS AND PRICES

Size	PRICES					Size of Cloth Frame		Dimensions Over All		Size of Pulley	Width of Belt	Weight
	Two Sieves Deep											
	Number of Reductions					Width	Length	Width	Length			
4	240.	250.	260.			31½"	4' 5"	4' 8"	4' 9"	14 x 4	3"	
5	265.	275.	285.			31½"	5' 5"	4' 8"	5' 9"	14 x 4	3"	
6	290.	300.	310.			31½"	6' 5"	4' 8"	6' 9"	14 x 4	3"	
7	315.	325.	335.			31½"	7' 5"	4' 8"	7' 9"	14 x 4	3"	
8	340.	350.	360.			31½"	8' 5"	4' 8"	8' 9"	14 x 4	3"	
5B	310.	320.	330.	340.		40"	5' 5"	5' 5"	5' 9"	14 x 4½	3½"	
6B	340.	350.	360.	370.		40"	6' 5"	5' 5"	6' 9"	14 x 4½	3½"	
7B	370.	380.	390.	400.		40"	7' 5"	5' 5"	7' 9"	14 x 4½	3½"	
8B	400.	410.	420.	430.		40"	8' 5"	5' 5"	8' 9"	14 x 4½	3½"	
5C	340.	350.	360.	370.	380.	48"	5' 5"	6' 1"	5' 9"	14 x 4½	3½"	
6C	380.	390.	400.	410.	420.	48"	6' 5"	6' 1"	6' 9"	14 x 4½	3½"	
7C	415.	425.	435.	445.	455.	48"	7' 5"	6' 1"	7' 9"	14 x 4½	3½"	
8C	450.	460.	480.	490.	500.	48"	8' 5"	6' 1"	8' 9"	14 x 4½	3½"	

Each sieve or cloth frame is subdivided into as many divisions as the number of reductions the machine is to handle.

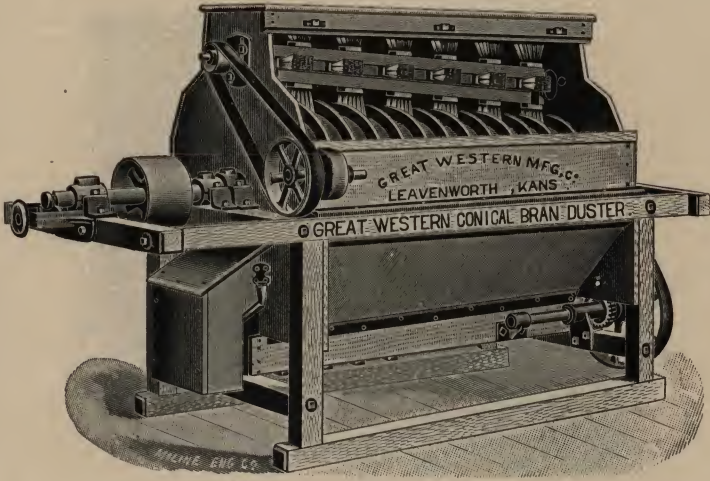
Height to top of inlet spout, 5' 3".

Speed, 150 revolutions per minute.

Countershaft and geared drive adds 4 1/2" to width over all.

Distance from floor to center of pulley, 10 1/2".

Price only includes driving pulley on machine. If countershaft, boxes, gears, and pulleys are furnished, add 10.00 net to price.



Great Western Conical Bran Dusters

The dusting case of this machine consists of a horizontal cone covered with wire cloth. The stock enters at the smaller end of the wire case, and is discharged at the opposite end. The machine is provided with a conveyor having slides underneath, which can be arranged to divide the product at any point desired, so as to make two grades of flour from the duster.

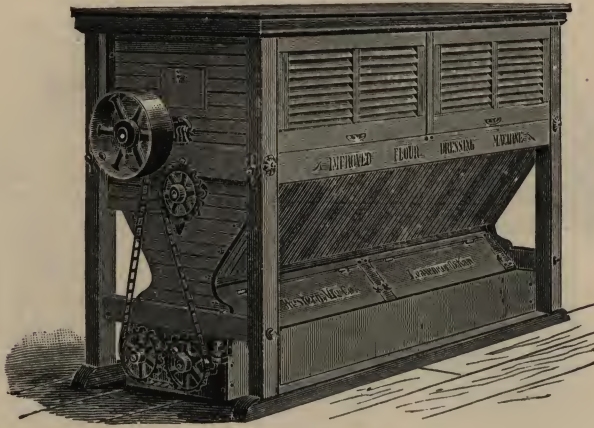
The revolving brushes inside the wire case can be adjusted while machine is running, and moved to or from the wire cloth as desired. The wire case slowly revolves, and is kept clean by a revolving outside brush.

The machine can be arranged to make one or more separations, but where more than one separation is desired it is necessary to use one size larger than if the machine was used as a duster only. We build this duster so it will run either way.

DIMENSIONS AND PRICES

No.	Price	Weight	Capacity per day of 24 Hours, Barrels	Size of Pulley	Motion per Minute
0	175.00	500	60	8" x 5"	450
1	200.00	540	100	8" x 5"	450
2	230.00	600	150	8" x 5"	450
3	270.00	800	225	10" x 7"	430
4	300.00	1000	300	10" x 7"	430
5	400.00	1500	400	14" x 7"	400
6	450.00	1700	500	14" x 7"	400
7	500.00	1800	600	14" x 7"	400

No.	Height from Floor to where Material Enters	Height from Floor to Center of Pulley	Extreme Height	Extreme Width	Extreme Length	Space on Floor
0	2' 11"	2' 4"	4' 11"	2' 9"	5' 2"	2' 7" x 2' 5"
1	2' 11"	2' 4"	4' 11"	2' 9"	5' 10"	3' 3" x 2' 5"
2	2' 11"	2' 4"	4' 11"	2' 9"	6' 6"	4' 0" x 2' 5"
3	3' 6"	2' 11"	4' 10 1/2"	3' 2 3/4"	7' 6"	4' 8" x 2' 11"
4	3' 6"	2' 11"	4' 10 1/2"	3' 2 3/4"	8' 3"	5' 5" x 2' 11"
5	4' 2"	3' 5"	5' 8 1/2"	3' 10"	8' 9"	5' 6" x 3' 5"
6	4' 2"	3' 5"	5' 8 1/2"	3' 10"	9' 5"	6' 2" x 3' 5"
7	4' 2"	3' 5"	5' 8 1/2"	3' 10"	10' 1"	6' 10" x 3' 5"



Flour Dressers

The frame of this machine is of hard wood, put together by mortise and tenon joints securely fastened with joint bolts. Around the top is a neat moulding. The body of the machine is made of clear and dry lumber, the gather boards being made of light and dark woods, alternately, presenting a fine effect. Slatted doors are provided on each side of the reel. The conveyor boxes project beyond each end of the machine to facilitate spouting when one reel is placed above the other. The wood work is properly filled and varnished to present a handsome and lasting finish.

A heavy iron reel shaft is mounted in adjustable habbitted bearings, and is made of sufficient length so that the reel can be driven from either end. The reel is constructed entirely of iron, having a heavy cast iron reel head, and made sufficiently strong so there is no liability of racking or twisting when loaded to its fullest capacity. Many times bolting cloths are ruined on account of this twisting or racking when reels are built too light. The cloth is supported by means of steel rings, covered with flannel to prevent contact of the silk with the rings. An adjustable revolving brush is furnished for keeping the cloth clean. Angle iron inter-elevators, fastened to the arms supporting the rings, take up and elevate a portion of the stock. These inter-elevators are placed at such a distance from the silk that a portion of the stock has an unobstructed flow down the ascending side of the reel, while that portion carried up by the inter-elevators is delivered against the silk on the descending side of the reel in an even and continuous stream. The above described operation of the inter-elevators or distributors gives the reel its very great capacity, and as the bolting is done entirely by the sliding action of the stock on the cloth, the highest desired results obtained in milling are secured. The stock is handled in a mild manner, free from any scouring action, and the machines are rapid, full and even bolters.

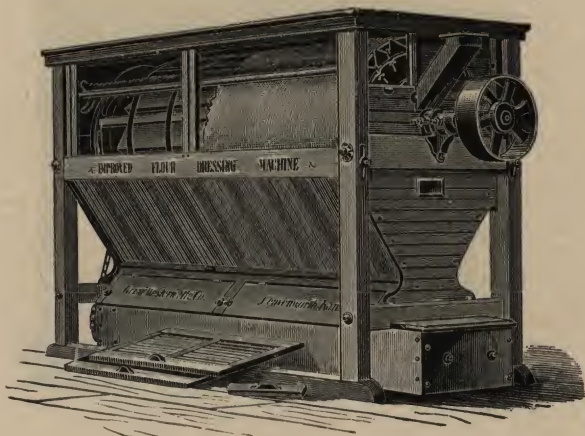
Double conveyors with tipping valves, accessible from either side of the machine are provided. These valves are so closely fitted that there is no mixing or liability of clogging.

An adjustable take-up device is provided for taking up any slack in the chain driving conveyors, which can be operated while the machine is in motion.

The frames of corresponding numbers of flour dressers, centrifugal reels, round reels and scalpers, are made of same dimensions, so that one may be placed on top of and driven from the other if desired.

DIMENSIONS AND PRICES

No.	Price	Reel		Shipping Weight	Frame			Length Over all	Size of Pulley	Revolutions
		Length	Diam.		Length	Height	Width			
0	270.00	8'	34"	850	9'	5' 2"	41"	10' 6"	16" x 33"	27
1	250.00	6'	34"	750	7'	5' 2"	41"	8' 6"	16" x 33"	27
2	235.00	8'	27"	725	9'	4' 8"	35"	10' 6"	16" x 33"	30
3	220.00	6'	27"	650	7'	4' 8"	35"	8' 6"	16" x 33"	30
3½	200.00	8'	20"	675	9'	3' 8"	28"	10' 6"	12" x 23"	40
4	190.00	7'	20"	625	8'	3' 8"	28"	9' 6"	12" x 23"	40
4½	180.00	6'	20"	575	7'	3' 8"	28"	8' 6"	12" x 23"	40
5	170.00	5'	20"	525	6'	3' 8"	28"	7' 6"	12" x 23"	40



Differential Flour Dressers

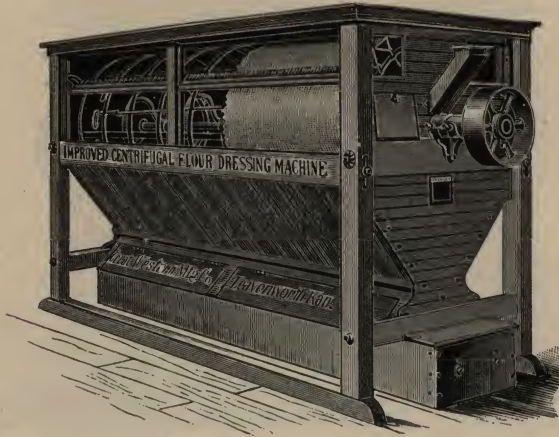
In addition to the Flour Dresser described on page 38 we also manufacture a Flour Dresser which has a cylinder inside the cloth cylinder. This cylinder is arranged to revolve at a different speed from the cloth cylinder, or, in other words, to give a differential motion, which makes it suitable for redressing flour, dusting fine middlings, and bolting low grade stocks. This machine is adapted for work usually performed on centrifugal reels. The work of this machine is superior to that of a centrifugal reel on this class of stock, and less power is required. The capacity of our Flour Dresser with differential motion is greater than any flour dresser made. The construction of this machine is the same as our regular Flour Dresser, except the inside cylinder is made to revolve much faster than the cloth cylinder. The cloth cylinder is provided with the inter-elevators for taking up and delivering stock to the inside cylinder. An adjustable revolving brush is furnished for keeping the cloth clean.

DIMENSIONS AND PRICES

No.	Price	Reel		Shipping Weight	Frame			Length Over all	Size of Pulley	Revolutions
		Length	Diam.		Length	Height	Width			
0	350.00	8'	34"	1200	9'	5' 2"	41"	10' 6"	16" x 32"	80
1	325.00	6'	34"	1000	7'	5' 2"	41"	8' 6"	16" x 32"	80
2	310.00	8'	27"	1200	9'	4' 8"	35"	10' 6"	16" x 32"	100
3	290.00	6'	27"	1000	7'	4' 8"	35"	8' 6"	16" x 32"	100

Special Drives

Prices include pulley on reel shaft of each machine; if, however, side drive or special drive of any kind be required on either Flour Dressers, Centrifugal Reels, Round Reels, or Scalpers, the same will be furnished attached to the machine, for which an additional charge will be made.



Centrifugal Reels

The frame and general outward appearance of our Centrifugal Reel is of the same style and finish as our Flour Dresser. The conveyor boxes project beyond both ends of the machine to facilitate spouting when one reel is placed above the other. A heavy iron reel shaft is mounted in adjustable babbitted bearings, and is made of sufficient length so that the reel can be driven from either end. The bearings are placed outside of the frame, so there is no liability of the oil and grease mixing with the stock in the reel.

The reel is constructed entirely of iron, the circular ends being heavy castings. Heavy angle irons form the ribs, and are securely riveted to the head and tail castings. The cloth is supported by steel rings covered with heavy flannel. The rings are placed at proper distances apart to prevent bagging of the cloth, and are riveted to the wrought iron angle irons or inter-elevators. For the protection of the cloth a wire cage is attached to the reel head casting, which prevents any foreign substances, such as dough balls, tacks, screws, etc., from entering the reel.

Upon the main shaft are placed cast iron spiders for supporting the beater wings. These cast iron spiders with beater wings are placed inside the cloth cylinder, and rotate at such a speed that the stock is distributed over the entire cloth surface. The angle iron inter-elevators or carriers continually lift the stock as it slides down the ascending side of the reel, and deliver it to the beater wings. These beater wings throw the material against the cloth at a suitable angle to bolt the flour particles, and at the same time not force the specks and impurities through the silk.

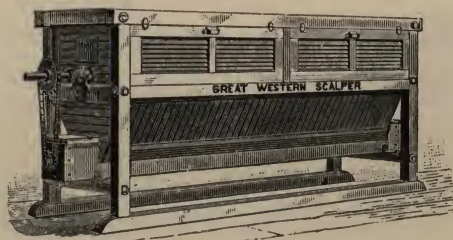
An adjustable take-up device is provided for taking up slack in the chain belt driving conveyors.

An adjustable revolving brush is furnished for keeping the cloth clean.

The frames of corresponding numbers of Centrifugal Reels, Flour Dressers, Round Reels and Scalpers, are made of the same dimensions, so that one may be placed on top of and driven from the other if desired.

DIMENSIONS AND PRICES

No.	Price	Reel		Shipping Weight	Frame			Extreme Length	Size of Pulley	Revolutions
		Length	Diam.		Length	Height	Width			
0	350.00	8'	34"	1300	9'	5' 2"	41"	10' 6"	12" x 4 1/2"	175
1	325.00	6'	34"	1050	7'	5' 2"	41"	8' 6"	12" x 4 1/2"	175
2	310.00	8'	27"	1100	9'	4' 8"	35"	10' 6"	12" x 4 1/2"	200
3	290.00	6'	27"	1000	7'	4' 8"	35"	8' 6"	12" x 3 1/2"	200
3 1/2	270.00	8'	20"	850	9'	3' 8"	28"	10' 6"	12" x 4 1/2"	225
4	225.00	7'	20"	700	8'	3' 8"	28"	9' 6"	12" x 4 1/2"	225



Round Reels and Scalpers

Our Round Reels and Round Scalpers have the same general outward appearance and construction as our Flour Dressers and Centrifugal Reels. The reel shaft is of iron, mounted in adjustable bearings, and of sufficient length so that the reel can be driven from either end. The reel is constructed entirely of iron, having a heavy cast reel head. The cloth is supported by means of steel rings covered with flannel. An adjustable brush is provided to keep the cloth clean. The conveyors project at both ends to facilitate spouting when the round reels or scalpers are placed on top of Centrifugal Reels or Flour Dressers. An adjustable take-up device is furnished to take up the slack in the chain belt driving the conveyors. The machines are built with single or double conveyors, as desired. Our patent cloth stretcher is furnished with these machines.

Reel		Prices		Weight		Length Over All
Length	Diameter	Single Conveyor	Double Conveyors	Single Conveyor	Double Conveyors	
5'	20"	125.00	140.00	390	525	7' 6"
6'	20"	130.00	145.00	-----	575	8' 6"
7'	20"	135.00	150.00	450	600	9' 6"
8'	20"	145.00	160.00	525	675	10' 6"
6'	27"	155.00	170.00	-----	685	8' 6"
8'	27"	165.00	180.00	-----	725	10' 6"
6'	34"	175.00	190.00	-----	750	8' 6"
8'	34"	180.00	200.00	750	850	10' 6"

Reel		Frame			Size of Pulley	Revolutions
Length	Diameter	Length	Height	Width		
5'	20"	6'	3' 8"	28"	12" x 23"	40
6'	20"	7'	3' 8"	28"	12" x 23"	40
7'	20"	8'	3' 8"	28"	12" x 23"	40
8'	20"	9'	3' 8"	28"	12" x 23"	40
6'	27"	7'	4' 8"	35"	14" x 31"	34
8'	27"	9'	4' 8"	35"	14" x 31"	34
6'	34"	7'	5' 1"	41"	16" x 31"	28
8'	34"	9'	5' 1"	41"	16" x 31"	28

Hexagon Scalpers

These machines are of the same general construction and appearance as our round reel scalpers. The reel is hexagon instead of round, and is built with iron spiders supporting heavy reel ribs.

Reel		Prices		Weight		Length Over All
Length	Diameter	Single Conveyor	Double Conveyors	Single Conveyor	Double Conveyors	
5'	20"	100.00	115.00	390	525	7' 6"
6'	20"	105.00	120.00	-----	575	8' 6"
7'	20"	110.00	125.00	450	600	9' 6"
6'	26"	120.00	135.00	-----	685	8' 6"
6'	32"	130.00	145.00	-----	725	8' 6"
8'	26"	135.00	150.00	-----	700	10' 6"
8'	32"	150.00	165.00	750	825	10' 6"
10'	26"	160.00	175.00	-----	-----	12' 6"
10'	32"	170.00	185.00	-----	-----	12' 6"

Reel		Frame			Size of Pulley	Revolutions
Length	Diameter	Length	Height	Width		
5'	20"	6'	3' 8"	28"	12" x 23"	40
6'	20"	7'	3' 8"	28"	12" x 23"	40
7'	20"	8'	3' 8"	28"	12" x 23"	40
6'	26"	7'	4' 8"	35"	14" x 31"	34
6'	32"	7'	5' 2"	41"	14" x 31"	28
8'	26"	9'	4' 8"	35"	14" x 31"	34
8'	32"	9'	5' 2"	41"	16" x 31"	28
10'	26"	11'	4' 8"	35"	14" x 31"	34
10'	32"	11'	5' 2"	41"	16" x 41"	28

Rye and Buckwheat Bolts

Same style and prices as Hexagon Scalpers; have double conveyors and silk cloth.



Great Western Sieve Purifiers

The principles of the Sieve Purifier are so well known that a detailed description is unnecessary. We simply wish to direct attention to a few of the special features of our machine.

The cloth is cleaned by a brush traveling crosswise under the Sieve. This method prevents all mixing of middlings, which is sure to occur when brush travels lengthwise of machine. This is a feature that will be appreciated by all millers.

The machine is constructed without pockets or other obstructions between cloth and fan, and all impurities are discharged from the machine into a dust collector or dust room as may be desired.

Each machine is provided with an automatic shaker feed, which distributes the stock the entire width of the Sieve in a uniform, steady stream.

We place the fan at rear of Purifier, thus giving the strongest suction through the coarse middlings, just where it is most needed.

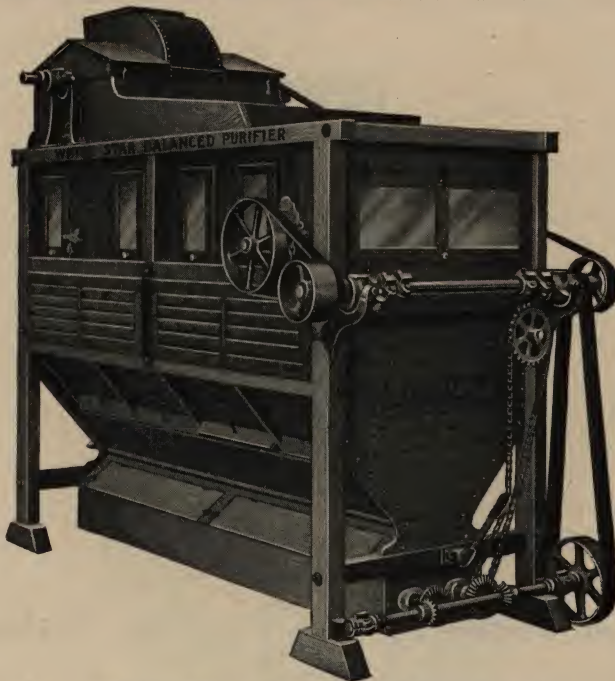
Double conveyors side by side are placed under each machine.

We can also build our Purifier with tail aspirator when required.

DIMENSIONS AND PRICES

Size	Price	Weight	Pulley	Revolutions	Fan Opening		Floor to Center of	
					Width	Depth	Eccentric Shaft	Fan Shaft
10	240.00	1000	6 x 3	550	6½"	6½"	3' 2½"	5' 3"
11	250.00	1050	6 x 3	550	8½"	6½"	3' 9½"	5' 10"
12	300.00	1350	6 x 3½	500	10½"	9"	4' 1"	6' 43"
13	350.00	1450	6 x 3½	500	11½"	9"	4' 43"	6' 72"
*12D	390.00	1500	6 x 3½	500	10½"	9"	4' 1"	6' 43"
*13D	440.00	1600	6 x 3½	500	11½"	9"	4' 43"	6' 73"
Size	Dimensions Over All			Dimensions of Frame			Dimensions of Cloth	
	Length	Width	Height	Length	Width	Height	Length	Width
10	8' 9"	2' 11½"	6' 3"	7' 9½"	1' 11½"	4' 6½"	7' 3½"	1' 43"
11	8' 9"	3' 5½"	6' 10"	7' 9½"	2' 5½"	5' 1½"	7' 3½"	1' 103"
12	8' 11"	3' 11½"	7' 63"	7' 11½"	3' ½"	5' 48"	7' 3½"	2' 43"
13	8' 11"	4' 5½"	7' 9½"	7' 11½"	3' 6½"	5' 8"	7' 3½"	2' 103"
*12D	8' 11"	3' 11½"	7' 63"	7' 11½"	3' ½"	5' 48"	7' 3½"	2' 43"
*13D	8' 11"	4' 5½"	7' 9½"	7' 11½"	3' 6½"	5' 8"	7' 3½"	2' 103"

*Sizes 12D and 13D have divided sieves



White Star Balanced Purifiers

This machine is different from all other types, in that it contains two shoes; the lower one carrying the sieve, while the upper, which is located in the expansion chamber, carries a system of small trays for collecting the heavier part of the dust as it arises from the cloth, and is deposited in a separate discharge at the tail, from that of the sieve. In all other types this heavier dust is lifted from the cloth, and, as the air is expanded on rising, the dust is precipitated back to the sieve, resulting in impure middlings. Both the shoe carrying the sieve and the one carrying the trays are of equal weight, and, being driven by double eccentrics from the same shaft, a perfectly balanced machine is the result. The trays, which are made of bright tin, are shellaced to prevent the dust from sticking to them.

The countershaft, as well as the fan shaft, is supported by adjustable ring oiling bearings. We equip this machine with the celebrated Combs Feeder, which is not attached to sieve and is driven with a separate belt from the shaker shaft.

The adjustments controlling the movement and distribution of the stock on the sieve are placed on the outside of the machine. The sieve frame is provided with adjustable strips of wood, to which the cloth is attached, so that it is an easy matter to stretch the cloth tightly by simply screwing up a few thumb nuts provided for the purpose.

The machine above the sieve is divided into four sections, each provided with a valve so perfectly designed that it is possible to maintain the strongest draft on one section, while on the adjoining one the draft can be shut off entirely.

In other types of purifiers, which take in air at the sides of the machine, there is an abundance of air currents through the sides of the sieve and almost an entire absence of them in the center. We have designed our machine so air is admitted to the sides of the sieve and also to the center, the result being an even current of air through all parts of the stock, causing perfect purification.

The machine is supplied with double conveyors, tipping cut-offs, an adjustable brush traveling crosswise of machine, and glass paneled doors.

DIMENSIONS AND PRICES

Size	Price	Weight	Pulley	Revolutions	Fan Opening		Floor to Center of	
					Width	Depth	Eccentric Shaft	Fan Shaft
50	290.00	1100	6 x 3	550	61"	61"	3' 21"	5' 3"
51	300.00	1150	6 x 3	550	81"	61"	3' 91"	5' 10"
52	360.00	1500	6 x 3½	500	101"	9"	4' 1"	6' 43"
53	420.00	1600	6 x 3½	500	111"	9"	4' 43"	6' 73"

Size	Dimensions Over All			Dimensions of Frame			Dimensions of Cloth	
	Length	Width	Height	Length	Width	Height	Length	Width
50	8' 9"	2' 11½"	6' 3"	7' 9½"	1' 11½"	4' 61"	7' 31"	1' 43"
51	8' 9"	3' 51"	6' 10"	7' 9½"	2' 51"	5' 11"	7' 31"	1' 103"
52	8' 11"	3' 11½"	7' 63"	7' 11½"	3' 1"	5' 41"	7' 31"	2' 43"
53	8' 11"	4' 51"	7' 91"	7' 11½"	3' 61"	5' 8"	7' 31"	2' 103"



Great Western Up Blast Aspirating Purifiers

This machine is designed and constructed on principles which are new and novel, the object being to very thoroughly aspirate and purify all kinds of cereal products.

The important feature is the delivery of the stock in a thin, even spray, moving in the same direction as the purifying air current, thus greatly increasing the capacity and efficiency of the machine, the separation of impurities from the good stock being much more effective than can be secured in that type of aspirators in which a descending stream of stock meets an ascending air current.

The principal parts of the machine are the purifying chamber, the settling chamber, and the mechanism for delivering the stock to the air current. The purifying chamber is an upright cylinder to which air is admitted through a narrow slot extending entirely around the bottom. The stock to be treated is delivered into the center of this cylinder and onto the revolving distributor, the effect of which is to discharge the stock evenly outward and upward in the direction of the moving air current. Suction ducts connect the top of the cylinder with the gooseneck.

A separate fan is required to produce the air current. The suction spout from the fan is connected to the gooseneck, and one fan can be used for several aspirators. The fan will discharge the lighter dust, while the heavier particles will be deposited in the settling chamber connected to the machine.

Valves are provided for regulating the suction, and, with the even distribution of the air and the stock within the separating chamber, less air is required and better work is accomplished than is possible with aspirators constructed in the ordinary manner.

DIMENSIONS AND PRICES

No.	Price	Weight	Pulley	Speed	Length	Width	Height over all	Height to Spout	Height to Pulley
1	60.00	125	6x2	125	3'0"	1'7"	4'2"	3'2"	2'8"
2	75.00	150	6x2	125	3'9"	1'9"	4'4"	3'2"	2'8"

Aspirators

We manufacture a number of different styles of Aspirators, either single or double, which are excellent machines, at a moderate price, for handling corn goods, germ middlings, etc. When desired, we can furnish these machines with a shaking sieve for making two or more separations.

Prices and cuts upon application.



Peerless Gravel Separators

FOR SEPARATING GRAVEL, MINERALS AND OTHER FOREIGN IMPURITIES
FROM WHEAT

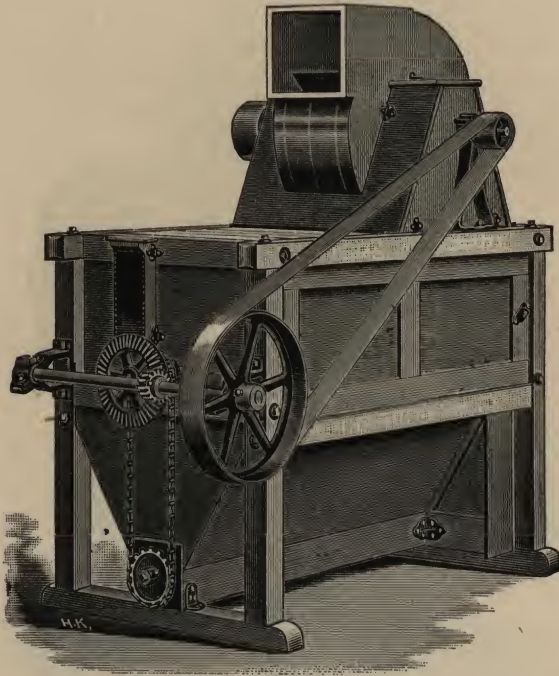
This machine is designed to meet the requirements of millers in sections where gravel, small stones, etc., are found in wheat.

It will separate gravel, sand and other impurities of the same size as the wheat berry.

DIMENSIONS AND PRICES

No.	Price	Weight	Width	Length	Height	Size of Pulley	Speed	Capacity per Hour in Bushels
1	250.00	640	5' 1"	4' 6"	6' 7"	6 x 5	800	10 to 50
2	300.00	800	7' 4"	4' 6"	6' 7"	6 x 6	800	50 to 75

Send for special descriptive circular.



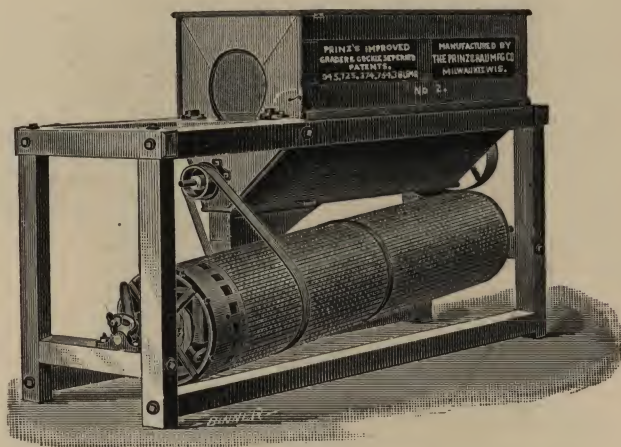
Great Western Rolling Screens

Our Rolling Screen is designed for dusting and polishing wheat after it has passed through the regular line of cleaning machines. The reel is a circular rolling screen, covered with plated steel wire cloth, or perforated metal, and is provided with angle iron buckets or elevators for increasing the capacity of the screen. The grain is fed into the head end of the screen and passes along towards the tail end, being acted upon by air currents which are admitted through the wire screen, removing all dust, scourings, etc. The grain is then discharged at the tail end into a suction trunk, where a stronger current of air again acts upon it. Any broken wheat or fine particles passing through the screen are handled by the conveyor under the machine.

DIMENSIONS AND PRICES

No.	Price	Reel	Length Over All	Size on Floor	Height of Frame	Extreme Height	Size Pulley	Speed of Fan	Capacity Bushels per Hour
21	150.00	3'x20"	5' 6"	2' 4"x3' 11"	3' 9"	5' 8"	5x32	500	20
22	175.00	4'x20"	6' 6"	2' 4"x4' 11"	3' 9"	5' 8"	5x32	500	30
23	200.00	5'x20"	7' 6"	2' 4"x5' 11"	3' 9"	5' 8"	5x42	500	45
24	260.00	4'x27"	6' 8"	2' 11"x5' 2"	4' 8"	6' 11"	6x42	500	80
25	300.00	5'x27"	7' 8"	2' 11"x6' 2"	4' 8"	6' 11"	6x42	500	100
26	350.00	4'x34"	6' 8"	3' 6"x5' 2"	5' 2"	8' 0"	6x52	500	150
27	450.00	5'x34"	7' 8"	3' 6"x6' 2"	5' 2"	8' 0"	6x52	500	250

We also build Rolling Screens with or without suction fan for receiving grain before it is sent to cleaning machines. Prices upon application.



No. 2 Machine

Prinz Cockle Machines

No. of Machine	Price	Weight	Capacity Bushels per Hour	Length over all	Width over all	Height over all	Driving Pulley	Motions per Minute
1	65.00	260	16 to 18	7' 2"				17 to 20
1½	85.00	275	18 to 25	8' 2"				17 to 20
2	130.00	850	25 to 35	7' 6"	2' 3"	4' 6"	12"x3"	60
2½	155.00	950	35 to 45	8' 6"	2' 3"	4' 8"	12"x3"	60
3	215.00	1400	45 to 70	8' 0"	3' 2"	5' 0"	12"x4"	60
3½	230.00	1500	60 to 80	9' 0"	3' 2"	5' 2"	12"x4"	60
4	275.00	2400	70 to 110	8' 0"	3' 2"	7' 0"	18"x4"	60
4½	320.00	2500	100 to 130	9' 0"	3' 2"	7' 2"	18"x4"	60
5	400.00	3350	160 to 190	8' 0"	5' 0"	7' 8"	18"x4"	100
5½	480.00	3550	190 to 230	9' 0"	5' 0"	7' 10"	18"x4"	100

Nos. 1 and 1½ machines are 16 inches in diameter, and belt goes around the reel.

No supporting frame is furnished.

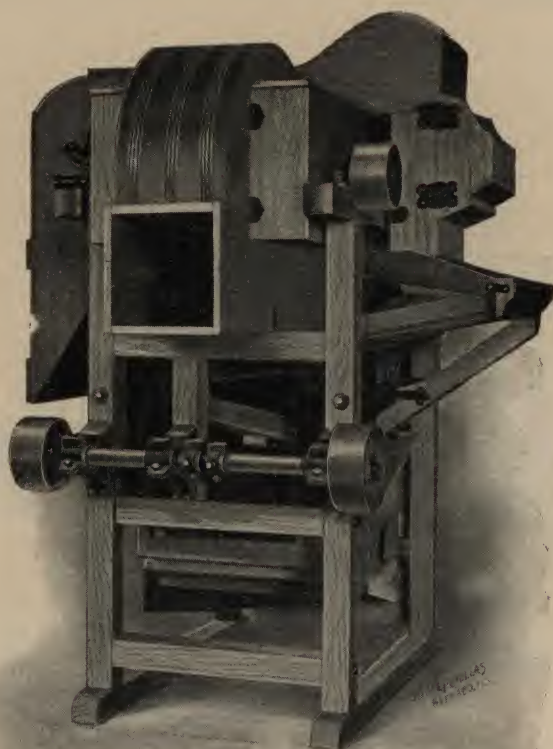
Nos. 2 and 2½ machines have one cockle cylinder with a short grading reel above.

Nos. 3 and 3½ machines contain two cockle cylinders with one grading reel above extending full length of machine.

Nos. 4 and 4½ machines have two grading reels extending full length of machine and two cockle cylinders beneath.

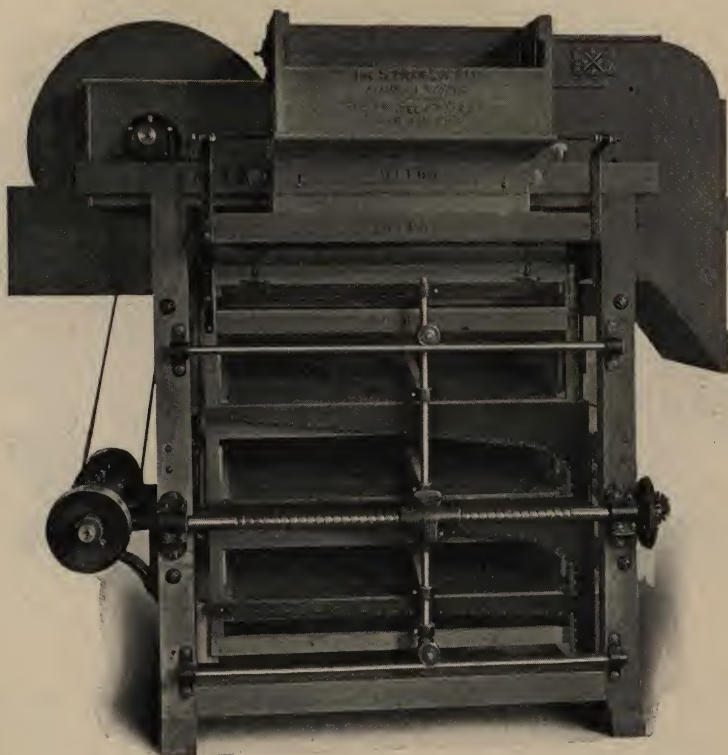
Nos. 5 and 5½ machines have four grading reels and three cockle cylinders. They are built with cross shaft drive.

NOTE—The Nos. 2 to 4½ machines inclusive can be driven from either end. When machine is to set at right angles to the driving shaft it may be furnished with cross shaft drive at an extra charge of 5.00 net. This cross shaft when used should run at 100 revolutions per minute, and is not furnished unless specially ordered.



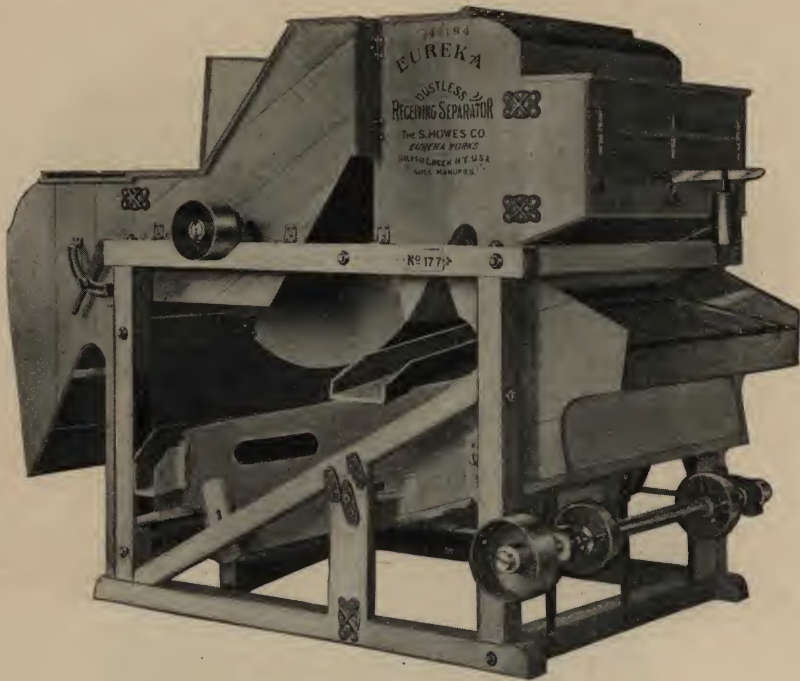
Eureka Counterbalanced Milling Separators

Number	196	197	198	199	200
Price	175.00	200.00	225.00	250.00	275.00
Capacity, Bushels per Hour	30	45	60	80	100
Shipping Weight	800	1000	1300	1400	1500
Size Pulley on Shaker Shaft	7x4	8x4	8x4½	9x4½	9x5
Revolutions of Shaker Shaft	520	520	520	520	520
Revolutions of Fan Shaft	700	700	675	650	660
Extreme Height	6'2½"	6'8½"	7'0"	7'5½"	7'6½"
Extreme Length	4'9½"	5'2"	5'9½"	6'3"	6'2"
Extreme Width	4'9"	5'2½"	5'6½"	6'0"	6'2½"
Size on Floor	2'4¾"x3'7½"	2'7¾"x4'2½"	2'10"x4'6"	2'11"x4'8¾"	3'0"x5'1"
Height to Center Drive Pulley	2'6½"	2'7½"	2'9½"	3'0"	3'0"
Height to Center Fan Shaft	4'9½"	5'1½"	5'6½"	5'6½"	5'7½"
Height where Grain Enters	5'3½"	5'8½"	5'10"	6'3"	6'4½"
Fan Opening, Depth	10	10	11½	12½	12½
Fan Opening, Width	10½	10½	11½	12½	12½
Number	201	202	203	204	204A
Price	325.00	400.00	500.00	600.00	700.00
Capacity, Bushels per Hour	150	250	350	450	550
Shipping Weight	1700	2400	2500	2700	3200
Size Pulley on Shaker Shaft	9x5½	10x5½	10x6½	12x8	12x8
Revolutions of Shaker Shaft	520	520	520	520	520
Revolutions of Fan Shaft	650	650	650	650	650
Extreme Height	8'0"	8'10½"	8'11½"	8'11½"	8'11½"
Extreme Length	6'6½"	7'6½"	7'8½"	8'8½"	9'9"
Extreme Width	6'9½"	7'1½"	7'6"	7'6"	7'6"
Size on Floor	3'4¾"x5'1½"	4'1"x6'0"	4'1½"x6'11"	4'1½"x6'11"	4'1½"x6'11"
Height to Center Drive Pulley	2'11½"	3'3"	3'3½"	3'3½"	3'3½"
Height to Center Fan Shaft	5'9½"	6'7½"	6'7½"	6'7½"	6'7½"
Height where Grain Enters	6'7½"	7'3"	7'3½"	7'3"	7'3"
Fan Opening, Depth	12½	13½	13½	13	15
Fan Opening, Width	12½	14	14	14	16



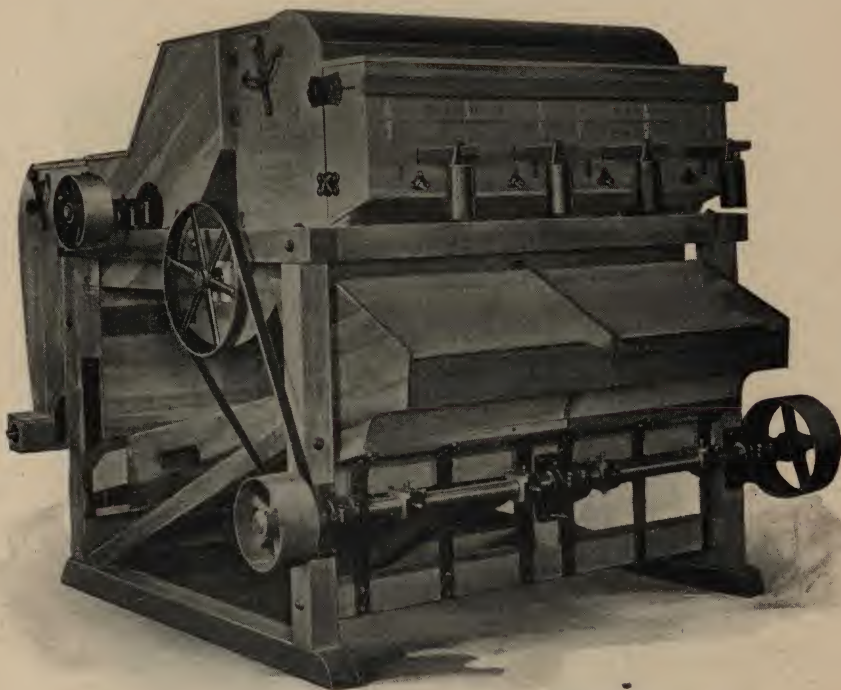
Eureka Perfected Milling Separators

Number	435	436	437	438	439	440
Price	250.00	300.00	350.00	400.00	450.00	550.00
Capacity, Bushels per Hour	40	60	80	100	120	150
Shipping Weight	1800	2000	2200	2800	3500	4000
Size of Pulley	7x4	8x4	8x4½	9x4½	9x5	12x5
Revolutions of Eccentric Shaft	440	440	440	440	440	440
Revolutions of Fan Shaft	700	700	700	700	700	700
Extreme Height	6'8½"	6'10"	7'0"	7' 2"	7'4"	8'9½"
Extreme Length	6'1½"	6' 7"	7'2½"	7'10½"	8'6½"	8'4½"
Extreme Width	5'5"	5' 5½"	6'2½"	6' 4"	6'4½"	8'7½"
Height where Grain Enters	6'1"	6' 1½"	6'2½"	6' 3½"	6'4½"	7'7½"
Height Center Fan Shaft	5'7½"	5' 8"	5'9"	5'10"	5'11"	7'2½"
Height Center Eccentric Shaft	2'2"	2' 2"	2'2"	2' 2"	2'2"	3' 7"
Size Fan Opening	10½"x11"	11"x11½"	11½"x12"	12"x12½"	12½"x13"	14"x15"
Number	441	442	443	444	445	446
Price	600.00	650.00	700.00	800.00	900.00	1000.00
Capacity, Bushels per Hour	200	250	300	400	500	600
Shipping Weight	4600	5000	5500	6500	7000	7800
Size of Pulley	12x5½	14x6	14x6	16x7	18x7	18x7½
Revolutions of Eccentric Shaft	440	440	440	440	440	440
Revolutions of Fan Shaft	700	700	700	600	600	600
Extreme Height	9' 13"	9' 8"	10' 2½"	10'2½"	10' 5"	10' 8½"
Extreme Length	8'10"	9'11½"	11' 1½"	13'0½"	14' 1"	15' 2½"
Extreme Width	8' 7½"	8' 9½"	9' 0"	8'8"	8' 9½"	8'11"
Height where Grain Enters	7'10½"	8' 3½"	8' 9½"	8'9½"	8'11"	9' 3½"
Height Center Fan Shaft	7' 0"	7' 8"	7'10½"	8'5½"	8' 8½"	8'11"
Height Center Eccentric Shaft	3' 2½"	3' 4½"	3' 8"	4'0½"	4' 3½"	4' 7½"
Size Fan Opening	15"x16½"	16½"x16½"	16½"x17"	17½"x18"	18"x19"	19"x20"



Eureka Double Receiving Separators

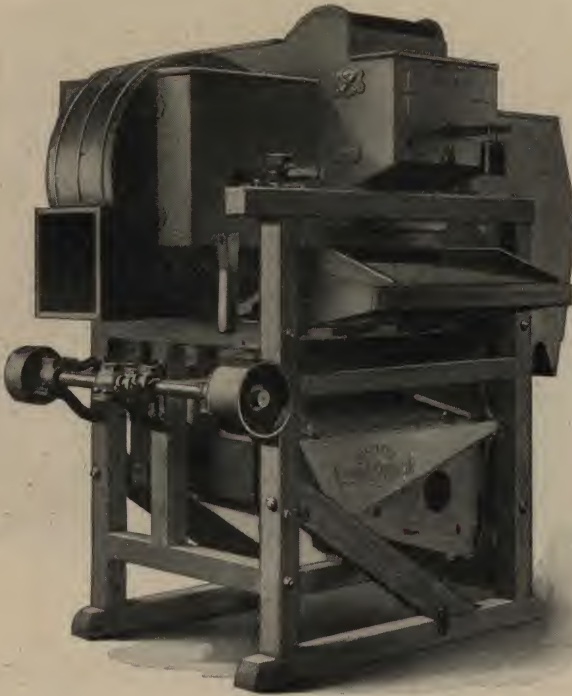
Number	174	175	176	177	178	179
Price	175.00	200.00	225.00	250.00	325.00	400.00
Capacity per Hour, Bushels	100	100	400	600	1000	1500
Wheat, Coarse Screens	50	100	200	300	500	750
Wheat, Medium Screens	30	60	120	180	300	450
Barley, Coarse Screens	50	100	200	300	500	750
Barley, Fine Screens	40	60	100	150	250	350
Corn or Oats	75	150	300	450	750	1200
Shipping Weight	800	1050	1680	2050	2400	2700
Size of Pulley	7x4½	7½x5	8x5½	10x5½	12x5½	12x6
Revolutions of Shaker Shaft	550	550	550	550	550	550
Revolutions of Fan Shaft	628	628	687	687	660	660
Extreme Height	5'4"	5'10½"	6' 6½"	6'7"	6' 9"	6'10½"
Extreme Length	6'9"	6'10"	8' 8½"	8'8½"	9' 8"	9' 8½"
Extreme Width	3'8½"	4' 6"	4'11½"	5'6½"	5'11½"	7' 1"
Size on Floor	3'0"x5'2"	3'8"x5'8½"	4'1½"x6'0"	4'4½"x6'0"	5'1½"x6'6"	5'8½"x6'7"
Height where Grain Enters	4'10½"	5'4"	5'10½"	5'10½"	6' ¾"	6'2½"
Height Center Drive Pulley	1' 0"	1'5½"	1' 8½"	1' 8½"	1'8½"	1'8"
Fan Opening, Depth	11½"	12½"	13½"	16"	16½"	16½"
Fan Opening, Width	11½"	12½"	15"	15"	14"	15"
Number	180	181	182	183	184	
Price	475.00	550.00	625.00	700.00	775.00	
Capacity per Hour, Bushels	2000	2500	3000	3500	4000	
Wheat, Coarse Screens	1000	1250	1500	1750	2000	
Wheat, Fine Screens	600	750	900	1050	1200	
Barley, Coarse Screens	1000	1250	1500	1750	2000	
Barley, Fine Screens	500	650	800	900	1100	
Corn or Oats	1500	2000	2500	3000	3500	
Shipping Weight	5100	4300	4600	5000	5200	
Size of Pulley	14x6½	16x7	16x8	18x8	18x8	
Revolutions of Shaker Shaft	550	550	550	550	550	
Revolutions of Fan Shaft	641	641	641	641	641	
Extreme Height	7'2½"	7'11"	7'11"	7'11"	7'11"	
Extreme Length	10'0"	9'8½"	9'8½"	9'8½"	9'8½"	
Extreme Width	7'1"	8'7"	8'5½"	9'5"	10'5"	
Size on Floor	6'1½"x6'9½"	6'8½"x7'0"	7'2"x7'2½"	8'4"x7'2½"	9'4"x7'2½"	
Height where Grain Enters	6'6"	6'10½"	6'10½"	6'10½"	6'10½"	
Height Center Drive Pulley	1'8½"	1'10½"	1'11½"	1'11½"	1'11½"	
Fan Opening, Depth	16½"	17"	18"	18"	18"	
Fan Opening, Width	16"	17"	18"	18"	18"	



Eureka Double-Fan Counterbalanced Elevator Separators

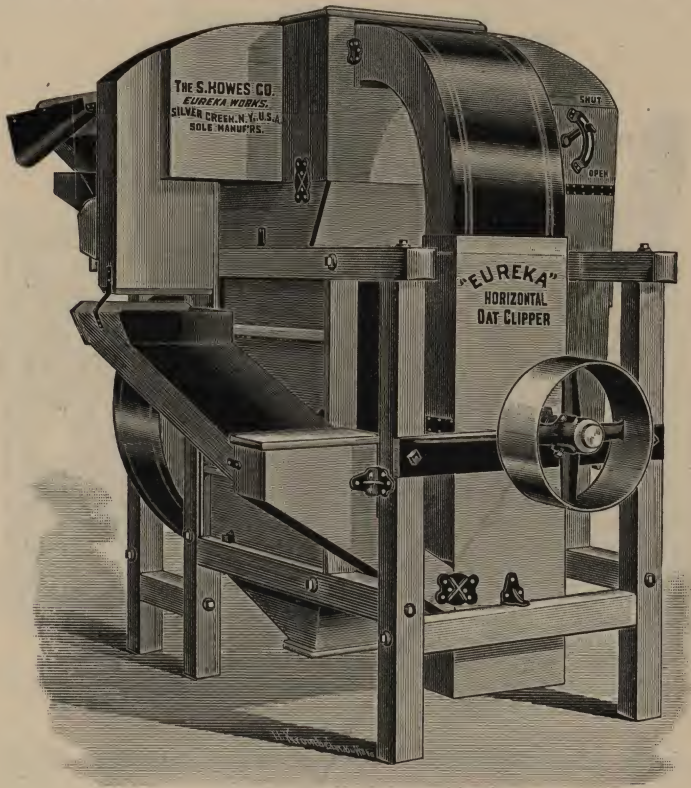
TWO SHOES

Number	162	163	164	165	166
Price	240.00	275.00	320.00	390.00	475.00
Capacity	Wheat, Fine Screens	60	120	180	300
Per Hour, Bushels	Wheat, Medium Screens	100	200	300	450
	Wheat, Coarse Screens	200	400	600	1000
	Corn or Oats	150	300	450	750
	Barley, Fine Screens	60	100	150	250
	Barley, Coarse Screens	100	200	300	500
Shipping Weight	1200	1800	2200	2650	3000
Size Pulley on Fan Shaft	7½x5	8x5½	10x5½	12x5½	12x6½
Revolutions per Minute	635	635	635	635	635
Extreme Height	5'10½"	6'6½"	6'7"	6'9"	6'10½"
Extreme Length	7' 7½"	8'8"	8'8½"	8'8"	8'10"
Extreme Width	4'10"	5'5½"	6'1½"	6'1½"	6'10"
Size on Floor	5'8½"x3'10"	6'0"x4'3½"	6'0"x4'9½"	6'4"x5'2"	6'7½"x5'8½"
Height where Grain Enters	5'4½"	5'10"	5'10½"	6' 3"	6'2"
Height Center Drive Pulley	4' ¾"	4' ¾"	4' 4"	4'6½"	4'7½"
Fan Opening, Depth	12½"	13½"	16"	16½"	16½"
Fan Opening, Width	7½"	8"	9"	8"	9"
Number	167	168	169	170	171
Price	560.00	645.00	730.00	815.00	900.00
Capacity	Wheat, Fine Screens	600	750	900	1050
Per Hour, Bushels	Wheat, Medium Screens	1000	1250	1500	1750
	Wheat, Coarse Screens	2000	2500	3000	3500
	Corn or Oats	1500	2000	2500	3000
	Barley, Fine Screens	500	650	800	900
	Barley, Coarse Screens	1000	1250	1500	1750
Shipping Weight	3160	4200	4350	4425	4800
Size Pulley on Fan Shaft	14x6½	16x7	16x8	16x8	18x8
Revolutions per Minute	600	600	575	575	575
Extreme Height	7' 3½"	7'3½"	7'7"	7'7"	7'7½"
Extreme Length	9'11½"	9'4"	10'5½"	9'8½"	10'6½"
Extreme Width	7' 7½"	8' ½"	9'1½"	9'6½"	10'7½"
Size on Floor	6'9½"x6'3½"	7'0"x6'9"	7'4"x7'2"	8'4½"x7'2"	9'4"x7'2"
Height where Grain Enters	6' 7½"	6' 7½"	6'10½"	6'11"	6'11"
Height Center Drive Pulley	4'11½"	4'11½"	5' 2½"	5' 2½"	5' 2½"
Fan Opening, Depth	16½"	17"	18"	18"	18"
Fan Opening, Width	9"	10"	10"	10"	13"



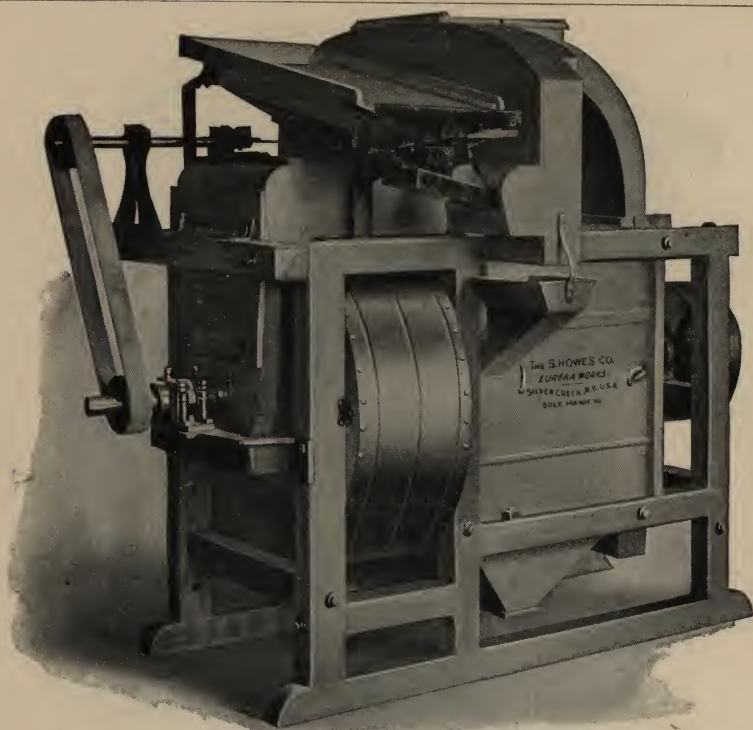
Eureka Counterbalanced Warehouse and Elevator Separators

Number	186	187	188	189	190
Price	250.00	300.00	350.00	450.00	525.00
Capacity, Bushels per Hour, Medium	75	125	200	300	450
Shipping Weight	1200	1450	1600	1900	2500
Size Pulley on Shaker Shaft	8x4	8x4½	9x5	10x5	10x5½
Revolutions of Shaker Shaft	525	525	525	525	525
Revolutions of Fan Shaft	675	675	650	625	600
Extreme Height	6'11½"	7'11"	7'7¾"	8'5"	8'8½"
Extreme Length	6' 5"	7'0"	7'4½"	8'0"	8'8"
Extreme Width	4'11½"	5'7¾"	6' ¾"	6'5"	6'6½"
Size on Floor	4'0"x2'10"	4'11"x3'3"	5'3½"x3'7"	5'7"x4'½"	5'9"x4'6"
Height Center Drive Pulley	2'7½"	2'7¾"	2' 0"	3'3¾"	3'0"
Height Center Fan Shaft	5'1½"	5'3"	5' 0½"	6'1½"	6'3"
Height where Grain Enters	6'4½"	6'6¾"	6'11½"	7'6¾"	7'9½"
Fan Opening, Depth	11½"	12½"	13½"	13½"	16"
Fan Opening, Width	11½"	12½"	12"	14"	15"
Number	191	192	193	194	194A
Price	600.00	700.00	800.00	900.00	1000.00
Capacity, Bushels per Hour, Medium	600	800	1000	1200	1500
Shipping Weight	3200	3350	4100	4400	4700
Size Pulley on Shaker Shaft	11x5½	12x6	14x6	16x7	18x8
Revolutions of Shaker Shaft	525	525	525	525	525
Revolutions of Fan Shaft	600	600	600	600	600
Extreme Height	9'8½"	9'9"	12'1"	12'1"	12'2"
Extreme Length	9'0"	11'1"	11'8½"	12'9"	13'9"
Extreme Width	8'1"	7'5"	8'8"	8'9"	8'9"
Size on Floor	6'8"x5'0"	7'0"x5'2½"	7'8"x5'8"	8'8"x5'10"	10'4"x5'9"
Height Center Drive Pulley	3'6"	4'1"	4'5½"	4'5½"	4'5½"
Height Center Fan Shaft	6'9"	7'2½"	9' ¾"	9' ¾"	9' ¾"
Height where Grain Enters	8'3"	8'9"	10'8"	10'9"	10'9½"
Fan Opening, Depth	16½"	17"	20½"	20½"	20½"
Fan Opening, Width	15"	16"	18"	18"	21"



Eureka Horizontal Oat Clippers

Number	27	28	29	30	31
Price, with Shoe	200.00	225.00	250.00	300.00	350.00
Price, without Shoe	175.00	200.00	220.00	260.00	300.00
Price of Carry-by Spout, Extra	25.00	25.00	30.00	34.00	40.00
Capacity, Bushels per Hour	60	90	120	160	200
Shipping Weight	1000	1200	1400	1825	2000
Size Pulley	8x5½	10x6½	12x6½	14x7½	16x7½
Revolutions per Minute	700	700	700	650	650
Extreme Height, with Shoe	5' 6"	5' 9"	6' 3"	6' 10"	7' 2"
Extreme Height, without Shoe	5' 6"	5' 9"	6' 3"	6' 5"	6' 10"
Extreme Length	5' 11"	6' 6"	7' 1"	7' 6"	7' 10"
Extreme Width	3' 10"	4' 4"	4' 9"	5' 4"	5' 7"
Size on Floor	4' 4"x2' 3"	4' 9"x2' 6"	5' 0"x2' 9"	5' 4"x2' 11"	5' 8"x3' 1"
Height where Grain Enters Shoe	5' 3"	5' 7"	6' 0"	6' 5"	7' 10"
Height Center Drive Pulley	2' 5"	2' 5"	2' 8"	2' 11"	2' 11"
Dust Spout, Depth Inside	11½"	12½"	12½"	13½"	14½"
Dust Spout, Width Inside	9½"	11"	11½"	12½"	12"
Number	32	33	35	36	37
Price, with Shoe	400.00	500.00	600.00	700.00	850.00
Price, without Shoe	350.00	425.00	525.00	600.00	725.00
Price of Carry-by Spout, Extra	50.00	50.00	60.00	70.00	80.00
Capacity, Bushels per Hour	400	600	800	1200	1500
Shipping Weight	2300	2500	3900	4850	5000
Size Pulley	18x8½	20x8½	24x12	24x12	30x12
Revolutions per Minute	600	550	500	450	450
Extreme Height, with Shoe	8' 7"	8' 11"	10' 2"	10' 4"	11' 2"
Extreme Height, without Shoe	7' 5"	7' 11"	9' 7"	9' 7"	10' 0"
Extreme Length	8' 3"	8' 10"	10' 2"	10' 8"	11' 6"
Extreme Width	6' 2"	6' 4"	7' 1"	7' 4"	7' 6"
Size on Floor	6' 0"x3' 5"	6' 5"x3' 7"	8' 2"x4' 1"	8' 7"x4' 3"	9' 2"x4' 2"
Height where Grain Enters Shoe	8' 5"	8' 11"	10' 5"	10' 10"	11' 0"
Height Center Drive Pulley	3' 1"	3' 4"	3' 6"	3' 9"	3' 9"
Dust Spout, Depth Inside	15½"	15½"	19"	20½"	20½"
Dust Spout, Width Inside	13½"	14"	16½"	18"	18½"



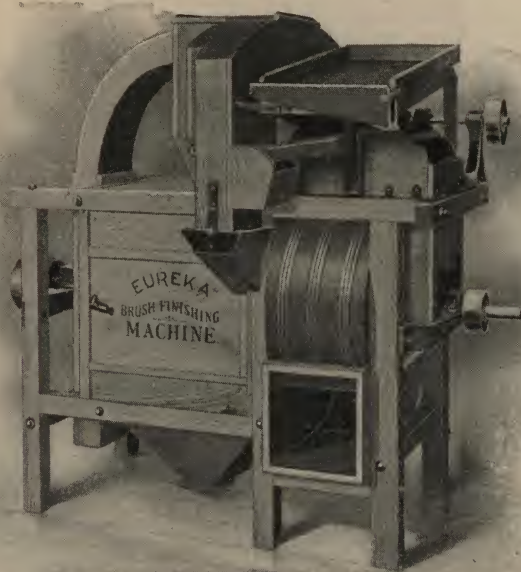
Eureka Horizontal Close Scourer, Smutter and Separating Machines

Number	15	16	17	18	19	20	21
Price, with Shoe	150.00	175.00	200.00	225.00	250.00	300.00	350.00
Price, without Shoe	125.00	150.00	175.00	200.00	225.00	260.00	300.00
Scouring Regulator, Extra	15.00	15.00	20.00	20.00	25.00	25.00	30.00
Capacity, Bushels per Hour	10	20	30	45	60	80	100
Shipping Weight	550	750	1000	1200	1400	1550	1900
Size Pulley	7x4½	7x5	7x5	10x6	12x6	14x7	16x7
Revolutions per Minute	700	650	600	550	550	525	450
Extreme Height, with Shoe	3'11½"	4'9"	5' 3"	5'9"	6'4"	6'5"	7' 2"
Extreme Height, without Shoe	3'10"	4'9"	5' 6"	5'9"	6'0"	6'5"	6'10"
Extreme Length	5' ¾"	5'8"	6' 0"	6'6"	7'0"	7'5"	7'10"
Extreme Width	2'11"	3'6"	3'10"	4'4"	4'9"	5'2"	5' 9"
Size on Floor	3'8"x1'6"	4'0"x2'0"	4'4"x2'3"	4'9"x2'6"	5'2"x2'9"	5'4"x2'11"	5'8"x3'1"
Height where Grain Falls on Shoe	3'11"	4'6"	5'4"	5'9"	6' 0"	6'6"	7' 2"
Height where Grain Enters, no Shoe	3' 0"	3'9"	4'6"	4'6"	4'10"	5'0"	5' 3"
Height Center Drive Pulley	1' 7"	2' ¾"	2'4½"	2'4½"	2' 8"	2'9"	2'11"
Fan Opening, Depth	8½"	10"	11½"	12½"	12½"	13½"	14½"
Fan Opening, Width	9½"	10½"	11"	12½"	13½"	14"	14½"
Number	22	23	24	25	26	26A	
Price, with Shoe	400.00	450.00	500.00	600.00	700.00	850.00	
Price, without Shoe	350.00	400.00	425.00	525.00	600.00	725.00	
Scouring Regulator, Extra	35.00	40.00	45.00	45.00	60.00	65.00	
Capacity, Bushels per Hour	150	200	250	350	450	600	
Shipping Weight	2300	2500	2700	3300	4300	4500	
Size Pulley	18x8	20x10	22x12	24x12	30x12	30x12	
Revolutions per Minute	425	400	400	375	375	375	
Extreme Height, with Shoe	7'9"	8' 1"	8'9"	9'10"	10'7"	9'7"	
Extreme Height, without Shoe	7'8"	7'11"	8'0"	8' 9"	9'7"	9'7"	
Extreme Length	8'4"	8' 6"	8'7"	10' 3"	10'8"	11'6"	
Extreme Width	6'1"	6' 3"	6'3"	7' 1"	7'6"	7'6"	
Size on Floor	6'0"x3'5"	6'7"x3'8"	6'9"x3'8"	7'5"x4'0"	7'9"x4'2"	8'4"x4'2"	
Height where Grain Falls on Shoe	7'9"	8'1"	8'8"	9'0"	9'7"	9'7"	
Height where Grain Enters, no Shoe	6'0"	6'3"	6'5"	7'0"	7'6"	7'6"	
Height Center Drive Pulley	3'5½"	3'4"	3'5"	3'6"	3'8"	3'8"	
Fan Opening, Depth	14½"	15½"	15½"	19"	20½"	20½"	
Fan Opening, Width	15"	16"	16"	18½"	20"	20"	



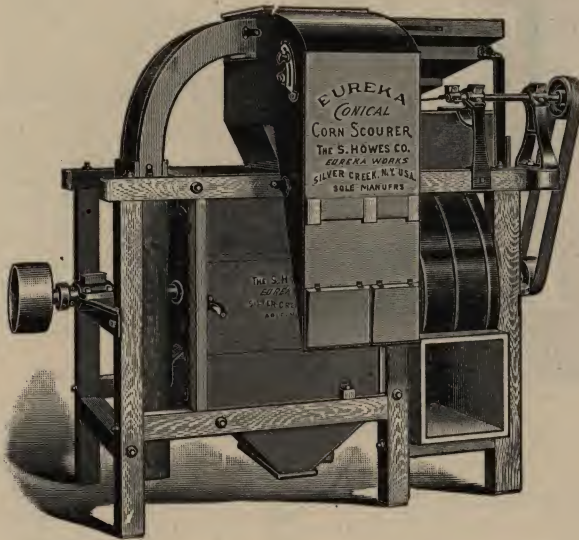
Eureka Double Smutter, Scourer and Polisher

Number	38	39	40	41	42
Price, with Shoe	245.00	290.00	335.00	380.00	420.00
Price, without Shoe	220.00	265.00	310.00	350.00	390.00
Scouring Regulator, Extra	25.00	30.00	30.00	35.00	40.00
Capacity, Bushels per Hour	10	20	30	45	60
Shipping Weight	900	1200	1800	2200	2550
Size Pulley	8x5½	9x6	10x6	12x6	14x7
Size Pulley on Opposite Side	9x4	10x5	12x5	14x5½	16x6
Revolutions per Minute	700	650	600	550	525
Extreme Height, with Shoe	5'8"	6' 9"	7'11"	8'3"	8' 7"
Extreme Height, without Shoe	5'8"	6' 3"	7' 6"	7'8"	8' 6"
Extreme Length	5'3"	5'10"	6' 6"	6'9"	7' 2"
Extreme Width	3'2"	3' 7"	4' 0"	4'8"	4'10"
Size on Floor	3'11"x1'7"	4'1"x2'0"	4'7"x2'3"	4'10"x2'6"	5'2"x2'9"
Height where Grain Falls on Shoe	5'8"	6' 9"	7'11"	8' 3"	8' 7"
Height where Grain Enters, no Shoe	5'8"	6' 3"	7'11"	8' 5"	8'11"
Height to Center Top Cylinder	3'3¾"	3'11½"	4'10¼"	4'10"	5' 6¾"
Height to Center Bottom Cylinder	1'8¾"	1'10¾"	2' 4"	2' 3¾"	2'10"
Height to Top Frame	4'1½"	5' ¾"	6' 1½"	6' 3"	6' 7½"
Fan Opening, Depth	10"	11½"	12½"	13½"	14½"
Fan Opening, Width	10½"	11"	13½"	14"	14½"
Number	43	44	45	46	46A
Price, with Shoe	500.00	580.00	650.00	750.00	850.00
Price, without Shoe	450.00	530.00	610.00	675.00	775.00
Scouring Regulator, Extra	45.00	55.00	60.00	70.00	80.00
Capacity, Bushels per Hour	80	100	150	200	250
Shipping Weight	2900	3500	4850	5000	7700
Size Pulley	16x7½	18x8½	20x10	22x12	24x14
Size Pulley on Opposite Side	18x6½	20x7½	22x8½	24x10	30x12
Revolutions per Minute	500	450	400	375	375
Extreme Height, with Shoe	9'6"	9'6"	11'6"	12'6"	12' 8"
Extreme Height, without Shoe	9'4"	9'9"	10'7"	11'1"	11' 1"
Extreme Length	7'7"	8'2"	8'9"	9'0"	9' 4"
Extreme Width	5'0"	5'4"	6'1"	6'9"	6'10"
Size on Floor	5'5"x2'11"	5'9"x3'1"	6'4"x3'6"	7'5"x3'9"	7'11"x3'9"
Height where Grain Falls on Shoe	9'4"	9'6"	11' 6"	12' 6"	12' 8"
Height where Grain Enters, no Shoe	9'4"	9'9"	10' 7"	11' 1"	11' 1"
Height to Center Top Cylinder	5'5½"	5'7½"	6' 5"	6' 7"	6' 7"
Height to Center Bottom Cylinder	2'6¾"	2'6¾"	2'11¾"	2'10¾"	2'10¾"
Height to Top Frame	7' ¾"	7'3"	8' 2¾"	8' 7"	8' 8"
Fan Opening, Depth	14½"	14¾"	15¾"	19"	19"
Fan Opening, Width	14¾"	15"	16"	18½"	18½"



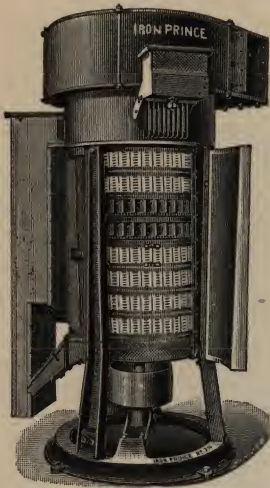
Eureka Horizontal Brush Finishing and Polishing Machines

Number	62	63	64	65	66
Price, with Shoe	205.00	235.00	265.00	294.00	352.00
Price, without Shoe	180.00	210.00	240.00	264.00	312.00
Capacity, Bushels per Hour	20	30	45	60	80
Shipping Weight	800	1000	1200	1500	1700
Size Pulley	7x5½	8x5	10x6	12x6	14x7
Revolutions per Minute	70½	650	600	550	500
Extreme Height, with Shoe	4'10"	5' 6"	6'0"	6' 3"	6'5"
Extreme Height, without Shoe	4'10"	5' 6"	5'8"	6' 0"	6'2"
Extreme Length	5' 1"	6' 0"	6'7"	6'10"	7'9"
Extreme Width	3' 6"	3'10"	4'4"	4' 9"	5'7"
Size on Floor	4'0"x1'11"	4'4"x2'2"	4'8"x2'5"	5'0"x2'9"	5'4"x2'11"
Height where Grain Falls on Shoe	4'10"	5'3"	5'9"	6' 0"	6' 5"
Height where Grain Enters, no Shoe	3' 8"	4'7"	4'8"	4'10"	5' 4"
Height Center Drive Pulley	2' ¾"	2'5"	2'5"	2' 8½"	2'11½"
Fan Opening, Depth	11½"	11½"	12½"	12½"	13½"
Fan Opening, Width	11"	11"	12½"	13½"	14"
Number	67	68	69	69½	
Price, with Shoe	410.00	470.00	530.00	585.00	
Price, without Shoe	360.00	420.00	480.00	510.00	
Capacity, Bushels per Hour	100	150	200	250	
Shipping Weight	1900	2500	2700	3000	
Size Pulley	16x7½	18x8	20x10	24x12	
Revolutions per Minute	450	400	375	375	
Extreme Height, with Shoe	7' 2"	7'9"	8' 1"	8' 1"	
Extreme Height, without Shoe	6'10"	7'6"	7'11"	7'11"	
Extreme Length	7' 8"	8'4"	8' 9"	9' 5"	
Extreme Width	5' 6"	6'9"	6' 4"	6' 3"	
Size on Floor	5'7"x3'1"	6'1"x3'6"	6'5"x3'8"	7'1"x3'8"	
Height where Grain Falls on Shoe	7' 2"	7'9"	8'1"	8'1"	
Height where Grain Enters, no Shoe	6' 5"	6'8"	6'2"	6'0"	
Height Center Drive Pulley	2'11"	3'1"	3'4"	3'4"	
Fan Opening, Depth	14½"	14½"	15½"	15½"	
Fan Opening, Width	14½"	15"	16"	16"	



Eureka Horizontal Conical Corn Scourers

Number	70	71	72	73	74	75
Price, with Shoe	175.00	200.00	225.00	250.00	300.00	350.00
Price, without Shoe	150.00	175.00	200.00	220.00	260.00	300.00
Capacity, Bushels per Hour	20	30	45	60	80	100
Shipping Weight	750	1000	1200	1400	1600	1900
Size Pulley	7x5	8x5	10x6	12x6	14x7	16x7
Revolutions per Minute	450	450	400	400	375	350
Extreme Height, with Shoe	4'9"	5' 9"	5'9"	6'3"	6'3"	7' 0"
Extreme Height, without Shoe	4'9"	5' 9"	5'9"	6'0"	6'0"	6'10"
Extreme Length	5'8"	6' 0"	6'6"	7'3"	7'5"	7'10"
Extreme Width	3'6"	3'10"	4'4"	4'9"	5'2"	5' 9"
Size on Floor	4'0"x2'0"	4'4"x2'3"	4'9"x2'6"	5'0"x2'9"	5'4"x2'11"	5'8"x3'1"
Height where Grain Falls on Shoe	4'6"	5'4"	5'9"	6' 0"	6'6"	7' 0"
Height where Grain Enters, no Shoe	3'9"	4'6"	4'6"	4'10 1/2"	5'0"	5' 3"
Height Center Drive Pulley	2' 3/4"	2'4 1/2"	2'4 1/2"	2' 8 1/2"	2'9"	2'11"
Fan Opening, Depth	10"	11 1/2"	12 1/2"	12 1/2"	13 1/2"	14 1/2"
Fan Opening, Width	10 1/2"	11"	12 1/2"	13 1/2"	14"	14 1/2"
Number	76	77	78	79	80	80A
Price, with Shoe	400.00	450.00	500.00	600.00	700.00	850.00
Price, without Shoe	350.00	400.00	425.00	525.00	600.00	725.00
Capacity, Bushels per Hour	150	200	250	350	450	600
Shipping Weight	2300	2500	2700	3300	3800	4500
Size Pulley	18x8	20x10	22x12	24x12	30x12	30x12
Revolutions per Minute	350	325	325	300	300	300
Extreme Height, with Shoe	7'8"	8' 1"	8'9"	9'10"	10'7"	10'7"
Extreme Height, without Shoe	7'8"	7'11"	8'4"	8' 9"	9'7"	9'7"
Extreme Length	8'4"	9' 0"	9'4"	10' 3"	10'8"	11'5"
Extreme Width	6'1"	6' 3"	6'3"	7' 1"	7'6"	7'6"
Size on Floor	6'0"x3'5"	6'6"x3'8"	7'0"x3'10"	7'5"x4'0"	7'9"x4'2"	8'4"x4'2"
Height where Grain Falls on Shoe	7'8"	8'1"	8'8"	9'0"	9'7"	9'7"
Height where Grain Enters, no Shoe	5'8"	6'3"	6'5"	7'0"	7'6"	7'6"
Height Center Drive Pulley	3'5 1/2"	3'4"	3'5"	3'6"	3'8"	3'8"
Fan Opening, Depth	14 1/2"	15 1/2"	15 1/2"	19"	20 1/2"	20 1/2"
Fan Opening, Width	15"	16"	16"	18 1/2"	20"	20"



Standard Machine

Iron Prince Scourers

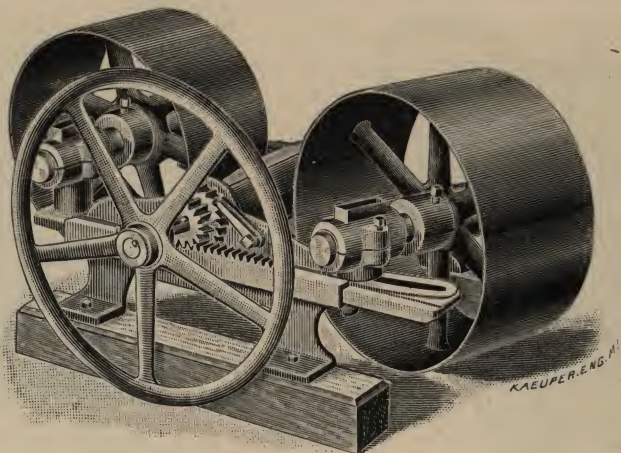
This machine is built to drive either at top or bottom. The bottom drive is furnished unless otherwise ordered. In ordering, please state whether the machine is to run with or against sun.

STANDARD MACHINES

Number	0	1	2	2½
Price	160.00	190.00	215.00	285.00
Capacity, Bushels per Hour	10-15	15-25	30-50	40-65
Shipping Weight	1400	1700	2000	2300
Size Pulley	11x5½	12x5½	16x6½	18x6½
Revolutions per Minute	650-700	650-700	580-620	510-550
Extreme Height	6'10"	8' 3"	8'3"	8'6"
Diameter of Base	2'10"	2'10"	3'1"	3'7"
Height where Grain Enters	5' 7"	7' 0"	7'0"	7'5½"
Height, Center of Pulley	15½"	15½"	15½"	16"
Fan Opening	9"x14"	9"x14"	10"x14"	11"x14"
Number	3	3½	4	5
Price	340.00	410.00	470.00	600.00
Capacity, Bushels per Hour	80-100	100-140	160-200	250-280
Shipping Weight	2900	3500	3900	5400
Size Pulley	20x6½	22x7½	24x8½	28x9½
Revolutions per Minute	480-530	420-460	400-440	350-375
Extreme Height	9' 0"	9'1"	9'3"	9' 9"
Diameter of Base	3'11"	4'1"	4'3"	4'11"
Height where Grain Enters	7' 3"	7'9"	7'9"	8' 4"
Height, Center of Pulley	17"	17½"	18½"	19½"
Fan Opening	13"x14"	13"x16"	14"x17"	15"x17"

MACHINES WITH INDEPENDENT FANS

Number	1	2	2½	3	3½
Price, Including Fan	210.00	235.00	305.00	360.00	430.00
Capacity, Bushels per Hour	15-25	30-50	40-65	80-100	100-140
Shipping Weight	1800	2300	2800	3000	3300
Size Pulley	12x4½	16x5½	18x5½	20x6½	22x6½
Revolutions per Minute	650-700	580-620	510-550	480-530	420-460
Extreme Height	7' 0"	7'0"	7'5½"	7' 3"	7'9"
Diameter of Base	2'10"	3'1"	3'7"	3'11"	4'1"
Height where Grain Enters	7' 0"	7'0"	7'5½"	7' 3"	7'9"
Height, Center of Pulley	15½"	15½"	16"	17"	17½"
Size of Independent Fan	30"	30"	35"	55"	35"
Speed of Independent Fan	1400-1600	1500-1800	1000-1200	1200-1400	1400-1700
Number	4	5	6	7	
Price, Including Fan	495.00	625.00	800.00	1000.00	
Capacity, Bushels per Hour	160-200	250-280	300-350	400-500	
Shipping Weight	4000	5100	6900	8850	
Size Pulley	24x7½	28x8½	34x9½	36x10½	
Revolutions per Minute	400-440	350-375	300-320	270-285	
Extreme Height	7'9"	8' 4"	9'6"	10'0"	
Diameter of Base	4'3"	4'11"	6'0"	6'3"	
Height where Grain Enters	7'9"	8' 4"	9'6"	10'0"	
Height, Center of Pulley	18½"	19½"	22"	30"	
Size of Independent Fan	40"	40"	45"	50"	
Speed of Independent Fan	1200-1400	1400-1600	1200-1400	1200-1300	



Double Tighteners

The Double Tightener is used when driving the Iron Prince Scourer from a horizontal shaft located either above or below the Scourer. It is made with large pulleys and bearings of ample diameter and length.

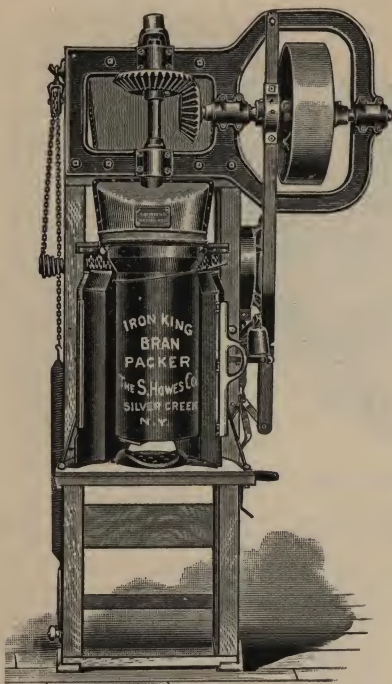
NOTE—The number or size of tightener corresponds with number of Scourer.

Tightener No.	Price	Weights	Length and Width Over All	Pulleys
0	36.00	200	29" x 21"	8" & 10" x 5½"
1	38.00	200	29" x 21"	8" & 10" x 6½"
2	40.00	250	32" x 26"	10" & 12" x 6½"
2½	46.00	275	32" x 26"	10" & 12" x 7½"
3	48.00	400	34" x 28"	12" & 14" x 7½"
3½	52.00	425	41" x 28"	14" & 16" x 8½"
4	55.00	550	43" x 28"	16" & 18" x 8½"
5	65.00	600	49" x 30"	18" & 20" x 11½"
6	75.00	675	54" x 35"	20" & 28" x 11½"
7	80.00	725	56" x 35"	22" & 25" x 12½"



Eureka Automatic Magnetic Separators

No.	Price	Capacity per Hour, Bushels	Gross Weight	Size of Pulley	Revolutions per Minute	Space Occupied, Inches
255	65.00	35	150	6 x 2	15	25 x 19 x 26
256	75.00	50	170	6 x 2	15	29 x 19 x 26
257	85.00	80	200	6 x 2	20	35 x 19 x 26
258	100.00	110	250	7 x 3	20	41 x 19 x 26
259	125.00	140	300	7 x 3	20	47 x 19 x 26
260	140.00	180	350	7 x 3	20	53 x 19 x 26
261	160.00	225	375	7 x 3	25	59 x 19 x 26
262	200.00	280	400	7 x 3	25	65 x 19 x 26
263	240.00	340	450	8 x 3	25	71 x 19 x 26
264	300.00	400	525	8 x 3	25	77 x 19 x 26
265	350.00	475	600	8 x 3	25	83 x 19 x 26
266	400.00	525	650	8 x 3	25	89 x 19 x 26
267	450.00	600	700	9 x 5	25	96 x 19 x 26



Iron King Bran Packer

Iron King Friction Drive Automatic Bran Packer

This machine is specially constructed for use in mills where great strength, rapidity and durability is required for packing bran and feed.

Iron King Friction Drive Automatic Mineral Packer

This machine is specially constructed for packing into barrels or bags cement, lime, mineral paints, talc, whiting, lead and other fine materials, where great strength, rapidity and durability is required. Most of the cement mills of this country are using the Iron King packer.

Iron King Friction Drive Automatic Bran Packer

Price, with tube, auger and enclosing case	270.00
Price, additional tube, auger and enclosing case	36.00
Price, additional enclosing case	24.00
Shipping weight	1800
Height	9' 6"
Width	5' 3"
Depth	3' 2"
Size of hopper inside	14"x24"
Floor to center of driving pulley	8' 1"
Size of drive pulley	24"x83"
Speed	175
Cogs in gear on packing shaft	35
Cogs in gear on countershaft	26

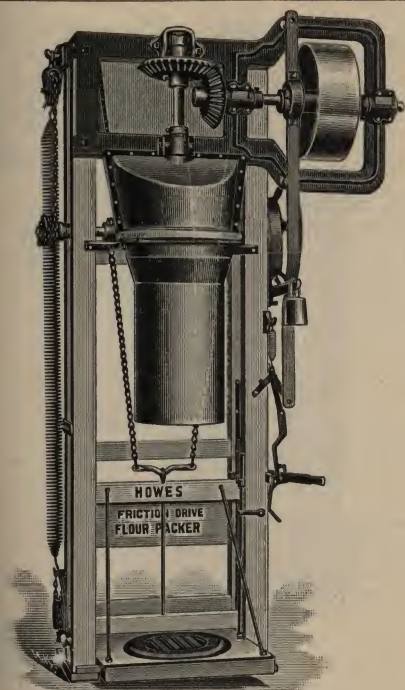
Iron King Friction Drive Automatic Mineral Packer

Price, with one tube and auger, any size	270.00
Price of each additional tube and auger when ordered with packer	23.00
Shipping weight	1800
Height	9' 7"
Width	5' 3"
Depth	3' 2"
Floor to center of driving pulley	8' 1"
Floor to top of hopper	8' 11"
Size of drive pulley	24"x83"
Speed	175
Cogs in gear on packing shaft	35
Cogs in gear on countershaft	26

Iron King Special Alfalfa Packer

This is an extra heavy machine for the hardest kind of work. Weight 2550 lbs. Price----- 400.00

See directions for ordering at bottom of page 62.



Howes Flour Packer

Howes Automatic Friction Drive Flour and Meal Packer

This is a rapid, strong and durable machine for use in the larger mills. It has the good points of the Silver Creek Flour Packer, and, in addition, a heavy cast iron frame carrying the journals and friction drive.

This machine is specially adapted for packing corn meal.

Jewel Automatic Friction Drive Sack Packer

While similar in construction to the Howes Friction Driven Flour Packer, it is somewhat smaller and specially built for packing sacks up to 98 pounds. It has the iron frame and friction drive.

Jewel Friction Drive Automatic Mineral Packer

This packer is similar in design to the Iron King, but of somewhat smaller and lighter construction, and intended for packing in sacks only. It is successfully used for packing lime, cement, mineral paints, chemicals, and other heavy material.

Howes Automatic Friction Drive Flour and Meal Packer

Price, with one tube and auger, any size	180.00
Price of each additional tube and auger when ordered with Packer	10.00
Shipping weight	1100
Height	8' 8"
Width	4' 10 1/2"
Depth	3' 8"
Size of hopper inside	21"x24"
Floor to center of pulley	7' 6"
Size of drive pulley	18"x6 1/2"
Speed	160
Cogs in gear on packing shaft	31
Cogs in gear on countershaft	23

Jewel Automatic Friction Drive Sack Packer

Price, with one tube and auger, any size	140.00
Price of each additional tube and auger when ordered with Packer	10.00
Shipping weight	800
Height	8' 0"
Width	4' 6"
Depth	3' 1"
Size of hopper inside	18"x21"
Floor to center of pulley	6' 7"
Floor to top of hopper	7' 4"
Size of drive pulley	18"x6 1/2"
Speed	160
Cogs in miter gears used	23

Jewel Friction Drive Automatic Mineral Packer

Price, with one tube and auger, any size	207.00
Price of each additional tube and auger when ordered with packer	23.00
Shipping weight	1200
Height	7' 10"
Width	4' 7"
Width of frame	1' 11"
Depth	3' 0"
Floor to top of hopper	7' 4"
Floor to center of Pulley	6' 8"
Size of drive pulley	18"x6 1/2"
Speed, depending on class of material	175 to 300
Cogs in miter gears used	23

See directions for ordering at bottom of page 62.



Silver Creek Bran Packer



Silver Creek Flour Packer

Silver Creek Automatic Bran and Feed Packer

Price, with tube, auger and enclosing case.....	200.00
Price, additional tube, auger and enclosing case.....	36.00
Price, additional enclosing case.....	24.00
Shipping weight.....	1250
Height.....	8' 9"
Width.....	3' 1"
Depth.....	3' 1"
Size of hopper inside.....	13 1/2"x24"
Floor to center of driving pulley.....	8' 0"
Size of drive pulley.....	24"x6 1/2"
Speed.....	175
Cogs in gear on packing shaft.....	39
Cogs in gear on countershaft.....	29

Silver Creek Flour and Corn Meal Packer

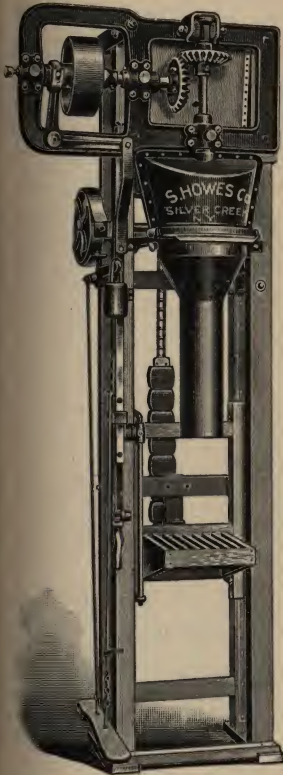
Price, with one tube and auger, any size.....	150.00
Price of each additional tube and auger when ordered with Packer.....	10.00
Shipping weight.....	1000
Height.....	8' 3"
Width.....	3' 3"
Depth.....	3' 6"
Size of hopper inside.....	21"x24"
Floor to center of pulley.....	7' 6"
Size of drive pulley.....	20"x5"
Speed.....	160
Cogs in gear on packing shaft.....	31
Cogs in gear on countershaft.....	23

Jewel Sack Packer

This Packer in general construction resembles the Silver Creek Flour Packer, but is lighter and smaller in every particular. We recommend it for packing any size sack up to 98 pounds.

Price, with one tube and auger, any size.....	120.00
Price of each additional tube and auger when ordered with Packer.....	10.00
Shipping weight.....	700
Height.....	8' 0"
Width.....	3' 0"
Depth.....	3' 4"
Size of hopper inside.....	18"x21"
Floor to center of pulley.....	6' 9"
Floor to top of hopper.....	7' 4"
Size of drive pulley.....	16"x4 1/2"
Speed.....	150
Cogs in miter gears used.....	23

In ordering packers, length and width of sack should be given when laid flat upon the floor. Also state if drive is to be on right or left hand side as you face the packer, and if augers are to run with or against the sun.



“Rapid” Small Sack Packer

FRICTION DRIVEN

POSITIVELY THE FASTEST SMALL PACKAGE PACKER MADE

This machine was specially designed to meet the demand of the large millers for a Packer that would pack small packages rapidly, efficiently and accurately, so that they could meet the requirements of the trade for small sacks economically.

Specially constructed to pack small sacks from two pounds to forty-eight pounds in weight.

The machine is designed to operate with a minimum consumption of friction, in order to pack rapidly and with as small amount of exertion as possible on the part of the operator. The platform can be adjusted so that in packing all sizes of sacks the top of the sack is on a level with the hands of the operator when filled.

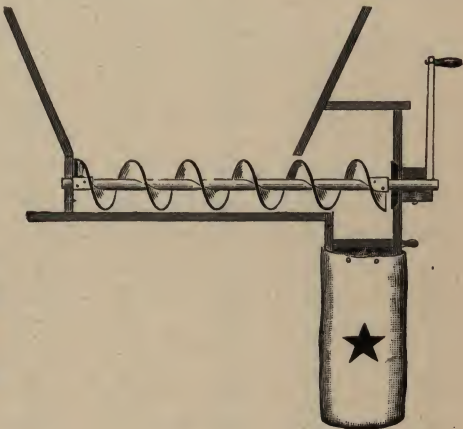
PRICES AND DIMENSIONS

Price, with one tube and auger, any size.....	209.00
Price of each additional tube and auger when ordered with packer.....	15.00
Shipping weight, boxed.....	760
Height	8' 1"
Width	3' 3"
Depth	3' 0"
Width of hopper.....	16"
Depth of hopper.....	18"
Floor to center of driving pulley.....	7' 3"
Size of drive pulley.....	10"x4"
Speed	350 to 400

Hand Packer

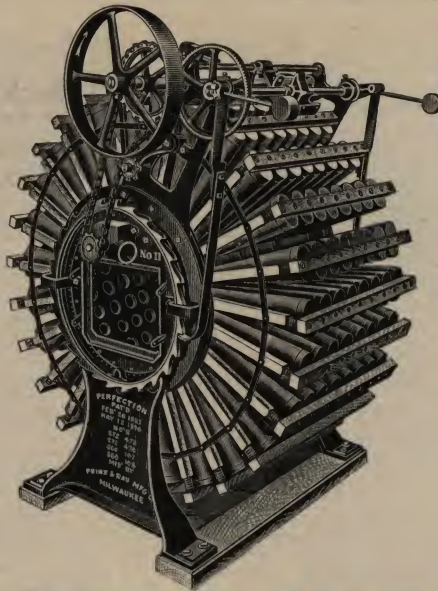
A simple, handy device for filling sacks by hand without the use of a scoop. We build the conveyor complete in box, with crank, ready to place under the exchange chest. It packs only when the handle is turned, and spills no flour.

Price of conveyor complete with crank.... 5.00



Packer Tallies

No. 1. Four dials, registering 10,000.....	8.00
No. 2. Five dials, registering 100,000.....	10.00
No. 2. With four-inch gong, to give an alarm at each 100.....	15.00
No. 1. Tally and lever attachment.....	9.50
No. 2. Tally and lever attachment.....	11.50
Attachment for 1/2, 1, 2 bbls., 140 lb. sacks.....	10.00
Attachment complete and No. 1 Tally.....	18.00
Attachment complete and No. 2 Tally.....	20.00



Perfection Dust Collectors

No.	Price	Approximate Shipping Wts.	No. of Tubes	Feet of Cloth	Size of Inlet	Size Over All		
						Height	Diameter	Length
1	75.00	750	184	130.5	7 $\frac{3}{4}$ " x 12 $\frac{3}{4}$ "	4' 11"	4' 1"	4' 3"
2	85.00	850	230	163	7 $\frac{3}{4}$ " x 12 $\frac{3}{4}$ "	4' 11"	4' 1"	4' 9"
3	95.00	950	276	195.5	7 $\frac{3}{4}$ " x 12 $\frac{3}{4}$ "	4' 11"	4' 1"	5' 3"
4	105.00	1050	322	228	7 $\frac{3}{4}$ " x 12 $\frac{3}{4}$ "	4' 11"	4' 1"	5' 9"
5	115.00	1150	368	260.5	7 $\frac{3}{4}$ " x 12 $\frac{3}{4}$ "	4' 11"	4' 1"	6' 3"
11	95.00	1000	208	192	11" x 14"	5' 11"	5' 0"	4' 3"
12	107.00	1100	260	240	11" x 14"	5' 11"	5' 0"	4' 9"
13	119.00	1200	312	288	11" x 14"	5' 11"	5' 0"	5' 3"
14	131.00	1300	364	336	11" x 14"	5' 11"	5' 0"	5' 9"
15	143.00	1400	416	384	11" x 14"	5' 11"	5' 0"	6' 3"
21	120.00	1300	288	265	18 $\frac{1}{2}$ " x 18 $\frac{1}{2}$ "	6' 8"	5' 8"	4' 3"
22	135.00	1400	360	332	18 $\frac{1}{2}$ " x 18 $\frac{1}{2}$ "	6' 8"	5' 8"	4' 9"
23	150.00	1500	432	399	18 $\frac{1}{2}$ " x 18 $\frac{1}{2}$ "	6' 8"	5' 8"	5' 3"
24	165.00	1600	504	466	18 $\frac{1}{2}$ " x 18 $\frac{1}{2}$ "	6' 8"	5' 8"	5' 9"
25	180.00	1700	576	533	18 $\frac{1}{2}$ " x 18 $\frac{1}{2}$ "	6' 8"	5' 8"	6' 3"
31	144.00	1350	288	370	18 $\frac{1}{2}$ " x 18 $\frac{1}{2}$ "	7' 8"	6' 8"	4' 3"
32	162.00	1450	360	462	18 $\frac{1}{2}$ " x 18 $\frac{1}{2}$ "	7' 8"	6' 8"	4' 9"
33	180.00	1600	432	554	18 $\frac{1}{2}$ " x 18 $\frac{1}{2}$ "	7' 8"	6' 8"	5' 3"
34	198.00	1750	504	646	18 $\frac{1}{2}$ " x 18 $\frac{1}{2}$ "	7' 8"	6' 8"	5' 9"
35	216.00	1850	576	738	18 $\frac{1}{2}$ " x 18 $\frac{1}{2}$ "	7' 8"	6' 8"	6' 3"
36	234.00	2150	648	832	19 $\frac{1}{2}$ " x 17 $\frac{1}{2}$ "	7' 8"	6' 8"	7' 5"
37	252.00	2250	720	926	19 $\frac{1}{2}$ " x 17 $\frac{1}{2}$ "	7' 8"	6' 8"	7' 10"
38	270.00	2350	792	1020	19 $\frac{1}{2}$ " x 17 $\frac{1}{2}$ "	7' 8"	6' 8"	8' 5"
39	288.00	2450	864	1114	19 $\frac{1}{2}$ " x 17 $\frac{1}{2}$ "	7' 8"	6' 8"	8' 11"
41	360.00	3000	1008	1282	19 $\frac{1}{2}$ " x 17 $\frac{1}{2}$ "	7' 8"	6' 8"	9' 11"
43	430.00	3200	1152	1476	19 $\frac{1}{2}$ " x 17 $\frac{1}{2}$ "	7' 8"	6' 8"	10' 11"

When desired machine is made inverted to hang from ceiling.

Unless otherwise specified all collectors will be built standard as shown in the cut, and furnished with the following size pulleys.

Nos. 1 to 15 with 18" x 2 $\frac{1}{2}$ " pulleys.

Nos. 21 to 35 with 18" x 3" pulleys.

Nos. 36 to 43 with 18" x 4" pulleys.

In cases where collectors must be driven from a fast running shaft, we will, when so specified, furnish either 24" or 28" diameter pulleys instead of the 18". The usual speed of all sizes of collectors is from 30 to 36 revolutions per minute, but in exceptional cases better results are obtained by speeding the machine up to 40 or even 45 revolutions per minute.

When machine is to be set at right angles to the driving shaft, it can be furnished double geared, that is, with cross shaft drive, located on floor at drive end of machine. Collectors of this type are furnished with 12" x 3" pulleys and cross shaft should run 90 to 100 revolutions. An additional charge of 6.00 net is made for machines with this drive.

A booklet fully describing this machine will be sent upon request.



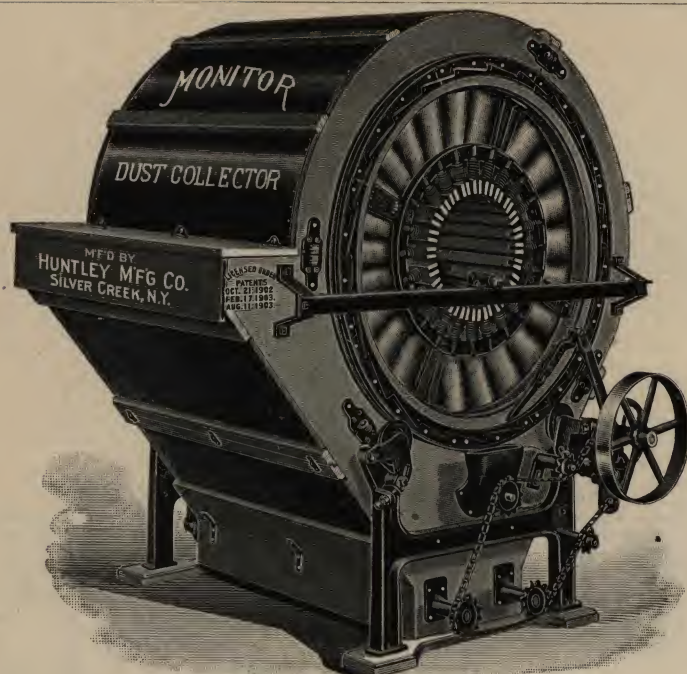
New Cyclone 1905 Dust Collector

The cut shows a right hand machine with air current running with sun which is regular. Machines can be furnished left hand, against sun, when desired. In ordering state which hand is wanted.

No.	Price	Shipping Wt.	Top Section	Center Section	Bottom Section	Total Height	Outside Diam.	Inlet Opening	Diam. Air Outlet	Area Air Outlet		Diam. Dust Outlet
										Sq. in.	Sq. ft.	
* 0	30.00	70	1' 2"		2' 2 1/2"	3' 4 1/2"	2' 8 1/2"	2 1/2 x 9 - 23"	8 1/2"	56	.389	3"
* 1	40.00	100	1' 3 1/2"		2' 8 1/2"	4'	3' 2 1/2"	3 x 10 1/2 - 32"	10"	78	.54	3"
* 2	60.00	140	1' 6 1/2"		3' 1 1/2"	4' 8"	3' 8 1/2"	3 1/2 x 13 - 47"	13"	132	.916	3"
* 3	75.00	175	1' 9"		3' 7 1/2"	5' 4 1/2"	4' 2 1/2"	4 1/2 x 16 - 72"	15"	176	1.227	4"
* 4	85.00	245	1' 11"	2' 0 1/2"	2' 1 1/2"	6' 1"	4' 8 1/2"	5 x 18 - 90"	17"	227	1.57	4"
* 5	100.00	315	2' 2"	2' 6 1/2"	2' 1 1/2"	6' 10"	5' 2 1/2"	5 1/2 x 21 - 115"	20"	314	2.18	4"
* 6	120.00	395	2' 5"	2' 7"	2' 6 1/2"	7' 6"	5' 8 1/2"	6 1/2 x 24 - 156"	23 1/2"	433	3.01	4"
* 7	140.00	490	2' 8"	2' 7"	3' 0 1/2"	8' 3 1/2"	6' 2 1/2"	7 x 27 - 189"	26"	531	3.68	5"
* 8	160.00	575	2' 11"	3' 1"	2' 11 1/2"	8' 11 1/2"	6' 11 1/2"	8 x 30 - 240"	28"	615	4.27	5"
* 9	190.00	715	3' 2"	3' 1"	3' 4 1/2"	9' 7 1/2"	7' 5 1/2"	8 1/2 x 32 - 272"	31"	754	5.23	6"
* 10	210.00	875	3' 5"	{ 2' 6 1/2" 2' 6 1/2" 2' 10 1/2"	1' 9 1/2"	10' 3 1/2"	7' 11 1/2"	9 x 35 - 315"	33"	855	5.94	7"
* 11	230.00	930	3' 10"	{ 2' 6 1/2" 2' 6 1/2" 2' 8 1/2"	1' 8 1/2"	10' 11 1/2"	7' 9 1/2"	9 x 40 - 360"	36"	1017	7.06	8"
* 12	250.00	1000	3' 11"	{ 2' 6 1/2" 2' 6 1/2" 2' 8 1/2"	2' 1 1/2"	11' 4"	8' 1 1/2"	10 x 41 - 410"	39"	1194	8.295"	9"
* 13	275.00	1095	4' 1"	{ 3' 0 1/2" 2' 7" 2' 8 1/2"	2' 1 1/2"	11' 10"	8' 5 1/2"	10 1/2 x 43 - 451"	41"	1320	9.16	10"
* 14	315.00	1455	4' 3"	{ 3' 4 1/2" 2' 7" 2' 8 1/2"	2' 1 1/2"	12' 4"	8' 9 1/2"	11 x 45 - 495"	44"	1520	10.55	10"
* 15	340.00	1600	4' 6"	{ 3' 2 1/2" 2' 7" 2' 8 1/2"	2' 6"	12' 9 1/2"	9' 1 1/2"	11 x 48 - 528"	46"	1662	11.54	10"
* 16	370.00	1700	4' 9"	{ 3' 6 1/2" 2' 7" 2' 8 1/2"	2' 6"	13' 4 1/2"	9' 5 1/2"	11 x 51 - 561"	49"	1885	13.09	12"
* 17	400.00	1855	5'	{ 3' 6 1/2" 3' 1" 2' 8 1/2"	2' 6"	14' 1 1/2"	9' 9 1/2"	11 1/2 x 54 - 621"	52"	2123	14.74	12"
* 18	460.00	2035	5' 3"	{ 3' 8 1/2" 3' 1" 2' 8 1/2"	2' 6"	14' 9 1/2"	10' 1 1/2"	12 x 57 - 684"	55"	2375	16.49	12"
* 19	486.00	2155	5' 6"	{ 4' 0 1/2" 3' 1" 2' 8 1/2"	2' 6"	15' 1 1/2"	10' 5 1/2"	12 x 60 - 720"	58"	2642	18.34	12"
* 20	515.00	2255	5' 9"	{ 3' 4 1/2" 3' 1" 2' 8 1/2"	3' 5"	15' 7 1/2"	10' 9 1/2"	12 1/2 x 63 - 807"	61"	2922	20.29	13"
* 21	580.00	2420	6'	{ 3' 4 1/2" 3' 5" 2' 8 1/2"	3' 5"	16' 2 1/2"	11' 1 1/2"	13 x 66 - 858"	64"	3217	22.34	13"
* 22	615.00	2555	6' 3"	{ 3' 8 1/2" 3' 5" 2' 8 1/2"	3' 5"	16' 9 1/2"	11' 5 1/2"	13 1/2 x 69 - 932"	67"	3525	24.48	13"
* 23	647.00	2745	6' 6"	{ 3' 8 1/2" 3' 9" 2' 8 1/2"	3' 4"	17' 3 1/2"	11' 9 1/2"	14 x 72 - 1008"	70"	3848	26.72	14"
* 24	680.00	2900	6' 9"	{ 4' 0 1/2" 3' 9" 2' 8 1/2"	3' 4"	17' 10 1/2"	12' 1 1/2"	14 1/2 x 75 - 1087"	73"	4185	29.06	14"
* 25	707.00	3065	7'	{ 4' 0 1/2" 4' 1" 2' 8 1/2"	3' 4"	18' 5 1/2"	12' 5 1/2"	15 x 78 - 1170"	76"	4536	31.5	14"
* 26	740.00	3235	7' 3"	{ 4' 0 1/2" 4' 5" 2' 8 1/2"	3' 4"	19' 0 1/2"	12' 9 1/2"	15 1/2 x 81 - 1255"	79"	4901	34.03	14"
* 27	782.00	3395	7' 6"	{ 4' 4 1/2" 4' 5" 2' 8 1/2"	3' 4"	19' 7 1/2"	13' 1 1/2"	16 x 84 - 1344"	82"	5281	36.67	14"

*For indoor use Nos. "0" to "10" inclusive are regularly built Mill Construction. When so ordered they will be furnished all steel at same List and Discounts. If collector is to be placed out doors, please so state on order. For outside use all sizes are constructed all steel. When ordering for use with independent Fans, give make, size and speed of Fan.

†All Steel. Write for special circular.



Monitor-Draver Dust Collectors

No.	Price	Shipping Weight	Square Feet of Cloth	Extreme Height	Extreme Depth	Extreme Width	Depth (length) on floor	Width on floor	Speed	Size of Drive Pulley
A-7	85.00	1100	136	5' 2"	5' 1"	4' 3"	3' 0"	3' 6"	40 to 50 Revolutions per Minute	16" x 2"
A-8	90.00	1200	156	5' 2"	5' 1"	4' 7"	3' 0"	3' 10"		16" x 2"
A-9	95.00	1300	176	5' 2"	5' 1"	4' 11"	3' 0"	4' 2"		16" x 2"
A-10	100.00	1400	195	5' 2"	5' 1"	5' 3"	3' 0"	4' 6"		16" x 2"
B-6	95.00	1200	165	6' 2"	5' 8"	3' 11"	3' 3"	3' 2"		16" x 2"
B-7	100.00	1300	192	6' 2"	5' 8"	4' 3"	3' 3"	3' 6"		16" x 2"
B-8	105.00	1400	220	6' 2"	5' 8"	4' 7"	3' 3"	3' 10"		16" x 2"
B-9	110.00	1500	247	6' 2"	5' 8"	4' 11"	3' 3"	4' 2"		16" x 2"
B-10	120.00	1600	275	6' 2"	5' 8"	5' 3"	3' 3"	4' 6"		16" x 2"
B-12	130.00	1700	330	6' 2"	5' 8"	5' 11"	3' 3"	5' 2"		16" x 2"
B-14	145.00	1850	385	6' 2"	5' 8"	6' 7"	3' 3"	5' 10"		16" x 2"
C-7	120.00	1400	250	7' 4"	6' 9"	4' 3"	4' 2"	3' 6"		16" x 3"
C-8	130.00	1500	320	7' 4"	6' 9"	4' 7"	4' 2"	3' 10"		16" x 3"
C-10	150.00	1650	400	7' 4"	6' 9"	5' 3"	4' 2"	4' 6"		16" x 3"
C-12	165.00	1900	480	7' 4"	6' 9"	5' 11"	4' 2"	5' 2"		16" x 3"
C-14	180.00	2000	560	7' 4"	6' 9"	6' 7"	4' 2"	5' 10"		16" x 3"
C-16	195.00	2100	640	7' 4"	6' 9"	7' 3"	4' 2"	6' 6"		16" x 3"
C-18	215.00	2500	720	7' 4"	6' 9"	7' 11"	4' 2"	7' 2"		16" x 3"
C-20	235.00	2600	800	7' 4"	6' 9"	8' 7"	4' 2"	7' 10"		16" x 3"
F-8	175.00	1850	480	8' 5"	7' 9"	4' 7"	4' 5"	3' 10"		16" x 4"
F-10	200.00	2000	600	8' 5"	7' 9"	5' 3"	4' 5"	4' 6"		16" x 4"
F-12	215.00	2300	720	8' 5"	7' 9"	5' 11"	4' 5"	5' 2"		16" x 4"
F-14	235.00	2500	840	8' 5"	7' 9"	6' 7"	4' 5"	5' 10"		16" x 4"
F-15	250.00	2600	900	8' 5"	7' 9"	6' 11"	4' 5"	6' 2"		16" x 4"
F-17	270.00	2800	1020	8' 5"	7' 9"	7' 7"	4' 5"	6' 10"		16" x 4"
F-19	290.00	3100	1140	8' 5"	7' 9"	8' 3"	4' 5"	7' 6"		16" x 4"
F-21	380.00	3500	1260	8' 5"	7' 9"	8' 11"	4' 5"	8' 2"		16" x 4"

These machines are built up in sections and taken apart for shipment. Easily and quickly reassembled for installing.

To determine size of Monitor Dust Collector required, figure number of square feet of cloth for each square inch of fan opening as follows.

Receiving separators and corn cleaners, 3 feet of cloth.

Milling separators, 2½ feet of cloth.

Scourers, 3 feet of cloth.

Oat clippers, 4 feet of cloth.

Purifiers, 7 feet of collector cloth for each square foot of sieve surface.

Figure for roll suction, feet of collector cloth for each double stand of (4) rolls, as follows:

25 feet for 6 x 12 and 6 x 16

30 feet for 6 x 24 and 9 x 14

40 feet for 9 x 30 and 10 x 30

28 feet for 6 x 18 and 6 x 20

35 feet for 9 x 18 and 9 x 24

45 feet for 10 x 36

Send for special circular.



Employees Belt Elevator

This device has been in use for a number of years and has been found to be the simplest, cheapest and best contrivance for carrying employees as well as stock or flour in bags from one floor to another. Where employees are often compelled to go from one floor to another in the discharge of their duties it will be found to be a great convenience.

The elevator runs at a moderate speed whenever the mill is in operation and anyone can step on or off without difficulty. Persons can be ascending and descending at the same time, as one side is always going up while the other is going down. The ascending and descending stations are entirely separate so no confusion results. As the steps are usually placed about 20 feet apart there is not much time lost in waiting for the elevator and consequently the device is a great time saver and much better for its purpose than other kinds of elevators.

The machine can be stopped at any time by persons on the ascending or descending sides by pulling on either of two ropes which run from top to bottom of the elevator and which shift the driving belt to the loose pulley.

To determine the height of elevator required, measure the distance from the bottom to ten feet above the top floor.

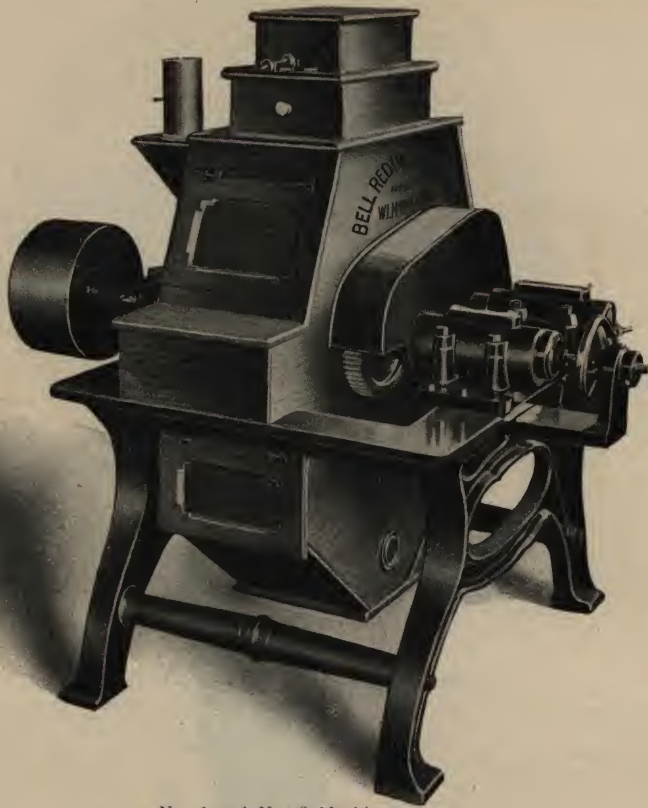
Drive machine 350 to 375 revolutions per minute; this gives the elevator speed of 70 to 75 feet per minute.

Pulley on elevator is 14 inches diameter, 5 inches face. Pulley on your driving shaft should be ten inches face, turned flat.

The shipping weight of a 50' elevator is about 1900 pounds.

PRICE LIST

50 ft. Elevator, without belt	300.00
50 ft. Elevator, with belt	420.00
For extra height, without belt, per foot.....	3.00
For extra height, with belt, per foot.....	6.00



No. 1 and No. 2 Machines

Bell Reduction Machines

This machine is placed ahead of the First Break Rolls. By splitting the berry lengthwise, the secreted dirt, which no scouring can successfully remove, is released and is easily removed by a set of scatterers placed in the hopping underneath the Discs.

No break-flour being produced, there is no loss, but the resulting gain is manifold. The rolls which receive the split wheat from the Bell Reduction Machine will make a decided improvement in the quality of the break-flour and quantity as well as quality of middlings, the latter being remarkably free of spicy "chippings" and bran-covered middlings. This is accounted for by the action of the discs, which shatter the middlings loose from the bran or outer covering of the wheat berry, thus enabling the break rolls to accomplish their work with much less power and at the same time producing a much more uniform chop, and finally permitting the bran rolls to produce a much broader, more uniform, and cleaner bran than can be produced where the rolls are forced together in the attempt to make a good clean-up.

The remarkable improvement in the color of the break-flour will enable the miller to make a decidedly larger per cent of patent flour. The uniformity of the middlings will result in a better and more satisfactory grading of the same and by relieving the break-stock of a large per cent of the heavy gray fluff and dirt previous to grinding, will enable the suction on the purifiers to work to a perfection not attainable without the use of this machine.

WHAT WE GUARANTEE

More and better patent flour.
Broader and cleaner bran.
Freedom from chit stock.

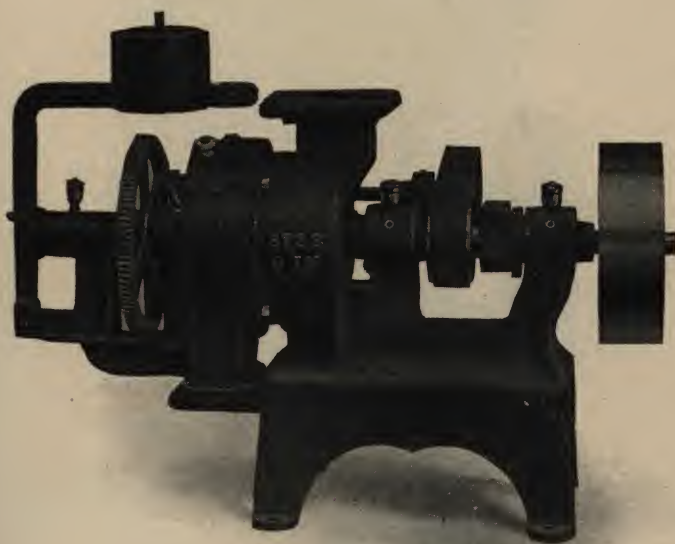
Saving in power.
Increase in capacity.
Cleaner, whiter and better break-flour.

An increased quantity and more granular middlings.

No.	Diam. Disc	Price	Weight	Capacity, Bu. per Hour	Pulley	Speed	Floor Space	Height Over All
0	10"	150.00	375	15-20	7 x 3	900	2'2" x 2'8"	3' 6"
1	14"	200.00	1140	30-40	10 x 4½	800	3'0" x 3'9"	4' 6"
2	20"	300.00	1500	60-70	12 x 6	800	4'0" x 4'9"	4' 2"
3	20"	500.00	3100	120-140	12 x 6	800	4'0" x 5'0"	5' 10"

The No. 3 is a double or two-high machine. The No. 1 is also furnished double when desired, and then has twice the capacity of regular No. 1.

Ask for booklet giving complete description of this machine.



Ideal Differential Middlings Mills

It is a well-known fact that middlings which have been ground one or more times on smooth rolls need only a very mild treatment of a disintegrating nature in order to bolt as much flour from them as can be bolted from the same middlings, if ground again on a smooth roll.

The difficulty has been to get a machine that would do this work properly, treating the stock uniformly; that is, all alike, not grinding and regrinding some, and discharging other without grinding. The Ideal Differential Middlings Mill solves the problem.

We do not recommend the use of these mills successively, but alternately with rolls. The rolls prepare the stock for the Middlings Mills, and the Middlings Mills prepare the stock for the rolls.

It is being built in three sizes:

6-inch Mill, equal to 16-inch Rolls.

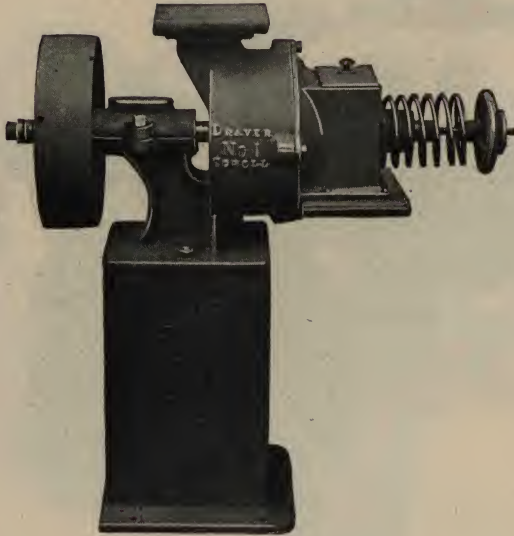
8-inch Mill, equal to 24-inch Rolls.

10-inch Mill, equal to 36-inch Rolls.

Made to run either right or left hand when standing facing drive pulley. Unless otherwise ordered left-hand machines will be shipped.

Size	Price	Weight	Pulley	Speed	Width	Length	Height to Spout Landing
6"	65.00	180	8 x 3	500	14"	32"	18"
8"	80.00	250	9 x 3	450	15"	34"	21"
10"	95.00	320	10 x 3	400	16"	36"	24"

If you are interested, write us for a circular more fully describing this excellent little machine.



Draver Scroll Mills

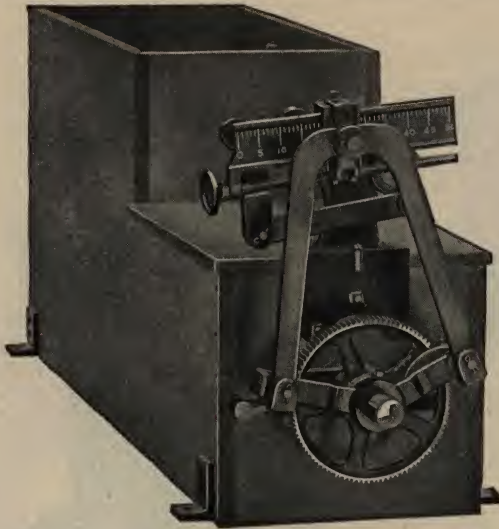
The popularity of the Draver Improved Scroll is due to the fact that it is the first and only machine of this type having the disintegrating disc faced with **TEMPERED STEEL CORRUGATED PLATES**. Each grinding point is faced with one of these plates; they cannot be injured by the machine running empty, as they cannot come in contact with anything but the material; they will give many years of the best service, and can be renewed at a small cost.

The machine is very simple, is free from chokes, and built to last.

It is guaranteed—to increase your capacity; to improve your grades; to better your percentages; to increase your yield.

No.	Price	Weight	Pulley	Speed	Floor Space	Height	Capacity Equals
0	60.00	100	9 x 3	350	9" x 25"	23"	15" Roll Surface
1	75.00	125	10 x 3	350	10" x 28"	25"	18" Roll Surface
2	85.00	175	11 x 4	350	12" x 30"	28"	30" Roll Surface
3	125.00	250	13 x 4½	350	14" x 32"	30"	48" Roll Surface
4	150.00	275	13 x 5	350	17" x 33"	33"	60" Roll Surface

We have a special circular of this machine that will be sent upon request.

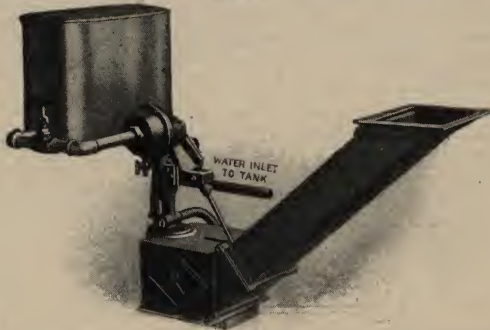


Drayer Double Acting Feeders

This feeder is equipped with an improved double acting ratchet mechanism, producing almost a continuous movement of the feeding conveyor, which not only feeds a uniform stream, but gives the machine double the capacity of a single ratchet drive.

A close adjustment can quickly be made from nothing to maximum capacity while the machine is in operation.

Size	Price	Capacity Bu. per Hour	Weight	Pulley	Speed	Floor Space	Height	Size of Inlet
0	30.00	10	100	10 x 2	10 to 50	24" x 10"	15"	4" x 10"
1	35.00	15	100	10 x 2	10 to 50	30" x 10"	15"	5" x 18"
2	40.00	45	150	10 x 3	10 to 50	30" x 10"	17"	7" x 15"
2A	45.00	50	150	10 x 3	10 to 50	36" x 10"	17"	7" x 20"
3	60.00	200	200	10 x 3½	10 to 50	35" x 12"	21"	10" x 17"
3A	65.00	300	200	10 x 3½	10 to 50	48" x 12"	21"	10" x 28"
4	140.00	400	300	11 x 4½	10 to 50	43" x 15"	24"	13" x 20"
4A	150.00	500	300	13 x 4½	10 to 50	52" x 15"	24"	13" x 30"
5	180.00	750	400	13 x 4½	10 to 50	60" x 18"	28"	17" x 30"



Kirk Adjustable Automatic Grain Dampeners

A device for tempering wheat that is perfectly automatic. No valves to close when mill stops, or open when it starts. The volume of wheat passing through machine governs the movement of the valve that allows water to go to the wheat. If there is no grain coming, no water is used. The device is also adjustable to suit conditions and the ideas of the miller.

Size	Price	Capacity, Bbls. in 24 Hours	Weight	Height to Where Wheat Enters
0	50.00	75-300	75	163"
1	60.00	300-1000	90	163"
2	75.00	1000-3000	115	163"

Write for special circulars.



Columbian First Break Feed Governors

The Columbian First Break Feed Governor is guaranteed to keep a perfectly regular feed on the first break regardless of the condition, kind or quality of the wheat. To feed any desired amount it is only necessary to move a weight on a graduated beam to the figures representing the amount it is desired to grind. Steam or water may be put on or taken off the wheat at any time, and the feed will continue perfectly regular.

It is not a feeder, but a governor, and is usually placed directly on top of the roller mill. The governor does not dump the wheat periodically, but delivers it to the first break feeder in a continuous, unbroken stream.

We will send you a governor on 30 days' trial, and if not satisfactory will pay freight both ways.

Height to where grain enters, 14". The size of the base varies from 8" x 10" to 8"x14", according to capacity of machine.

PRICES

No.	Bushels per Hour	Price	No.	Bushels per Hour	Price
0	3 to 8	25.00	7	35 to 50	37.50
1	7 to 12	25.00	8	40 to 60	40.00
2	10 to 15	25.00	9	50 to 75	42.50
3	12 to 18	27.50	10	60 to 90	45.00
4	15 to 25	30.00	11	75 to 115	47.50
5	20 to 30	32.50	12	90 to 130	50.00
6	25 to 40	35.00			

Special sizes made without extra charge.

The shipping weights run from 75 lbs. to 100 lbs.



The Common Sense Horizontal Wheat Steamer and Columbian First Break Feed Governor, Combined

In this combination the governor is placed ahead of the steamer to accommodate the steamer and not to accommodate the governor, as the governor will work equally well in either place, but the steamer must work on the stream. That is to say, the feed to the steamer is regulated by the governor before the wheat enters the steamer.

The wheat enters the steamer in a perfectly uniform stream and is carried through the steaming chamber by the spiral blades which revolve with sufficient velocity to keep it whirling round, each kernel being separated from every other kernel and completely enveloped in steam. The steamed wheat passes out at the spout and to the rolls, which also work on the stream, the feed gate on the first break being set sufficiently open to take all that comes from the steamer.

The steamer is light running, and is especially adapted for easy installation. The legs may be turned up or down, or to the right or left as may be convenient. It does not have to be cleaned out periodically. There are no traps, valves or springs inside to get out of order. The bearings are babbitted and supplied with grease cups. The steamer is provided with a wooden part for attaching the governor to, thus obviating the necessity of drilling holes in the steamer to match those in the base of the governor that may be on hand in the mill, or to attach a spout to, where a governor is not used.

Size of Steamer	Capacity Bushels per Hour	Price of Steamer	Price of Steamer with Governor	Speed	Size of Steamer	Capacity Bushels per Hour	Price of Steamer	Price of Steamer with Governor	Speed
0	8	40.00	65.00	300	7	50	52.50	90.00	400
1	12	40.00	65.00	300	8	60	55.00	95.00	425
2	15	40.00	65.00	300	9	75	57.50	100.00	400
3	18	42.50	70.00	300	10	90	60.00	105.00	450
4	25	45.00	75.00	325	11	115	62.50	110.00	500
5	30	47.50	80.00	350	12	130	65.00	115.00	550
6	40	50.00	85.00	375					

A pulley 8" x 3" is placed on all Steamers No. 0 to 8 inclusive, and a 10"x4" pulley on larger sizes.

These prices include a shaft extension of thirty inches, and a flexible coupling for connecting same to either end of the steamer shaft, and a self-adjusting babbitted journal box and hanger for outer end of shaft. For price of governor alone deduct price of steamer from price of combination.

Length of steamer over all of all sizes up to and including No. 8, is 68". This does not include the 30" extension shaft.

Height of steamer from lower end of discharge spout to where the governor attaches, 15".

Height of governor, 14".

Height of governor and steamer combined, 29".

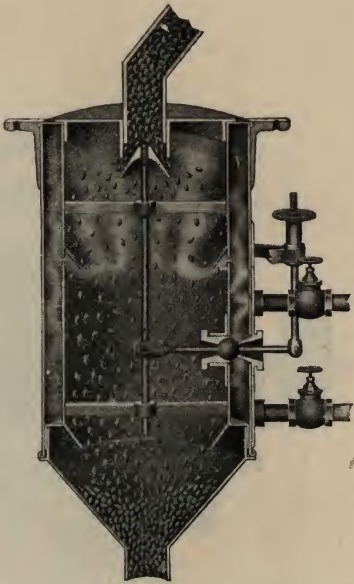
Horizontal distance from center of discharge spout on steamer to center of governor, 44".

Nos. 9, 10, 11 and 12 are two inches higher and four inches longer than the smaller sizes.

Shipping weights of combined machines run from 225 to 250 pounds.



Automatic



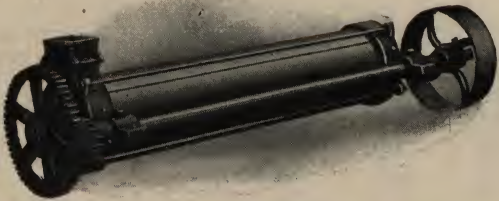
Adjustable

Beall Wheat Steamers

The Automatic Steamer has been on the market so long that it requires no detailed description. The Adjustable Steamer is especially intended for use in large mills which have a uniform feed on their first break, and where the automatic attachment is not necessary to prevent wheat backing up into the steamer. It is built just like the regular Beall Wheat Steamer except that it has the adjustable feed attachment instead of the automatic attachment, and has no springs or wires.

AUTOMATIC OR ADJUSTABLE

Size	Price	Capacity, Bbls. in 24 Hours	Weight	Pipe Connection	Diameter Over All	Height Over All
00	45.00	10- 50	25	1"	8"	20"
0	60.00	50- 75	31	1 1/4"	9"	24"
1	75.00	75-125	36	1 1/2"	10"	26"
2	90.00	125-250	44	2"	11"	30"
3	110.00	250-375	55	2 1/2"	13"	34"



Beall Horizontal Wheat Steamers

This machine is intended especially for use where there is not sufficient space above the rolls or bin to use the Automatic Wheat Steamer.

Water can also be used in this steamer and the wheat made as wet as desired. Iron supports are furnished which can be used above, below, or at one side.

Size	Price	Capacity, Bu. per Hour	Weight	Pulley	Speed of Pulley	Speed Shaft with Flights	Height Over All	Length Over All
00	60.00	5- 10	250	8 x 3	100	30-40	16"	38"
0	75.00	10- 25	300	10 x 3	150	45-60	16"	50"
1	85.00	25- 50	350	12 x 3	150	45-60	16"	62"
2	100.00	50- 85	400	14 x 3	150	45-60	16"	74"
3	125.00	85-120	600	16 x 6	150	45-60	16"	110"
4	150.00	120-160	950	18 x 6	150	45-60	16"	134"



Apelt Wheat Heater



Steam Generator

Apelt Jointless Wheat Heater

The Apelt Wheat Heater gives an absolutely even heat to the wheat and is so constructed that there are no joints in the heating surfaces, and it is guaranteed never to leak.

Every kernel of wheat is brought into direct contact with the heating surface and is heated uniformly.

Evenly tempered wheat, economical operation, durability, no leaks, white flour, broad flaky bran, absolute satisfaction, are the results obtained from the use of the Apelt Jointless Wheat Heater.

No.	Price	Weight	Capacity, Bu. per Hour	Pipe Connection	Height	Diameter	Width
0	125.00	325	35	3"	4' 7"	12"	2' 4"
1	180.00	435	60	3"	5' 6"	15"	3' 0"
2	250.00	700	100	3"	5' 6"	24"	3' 6"

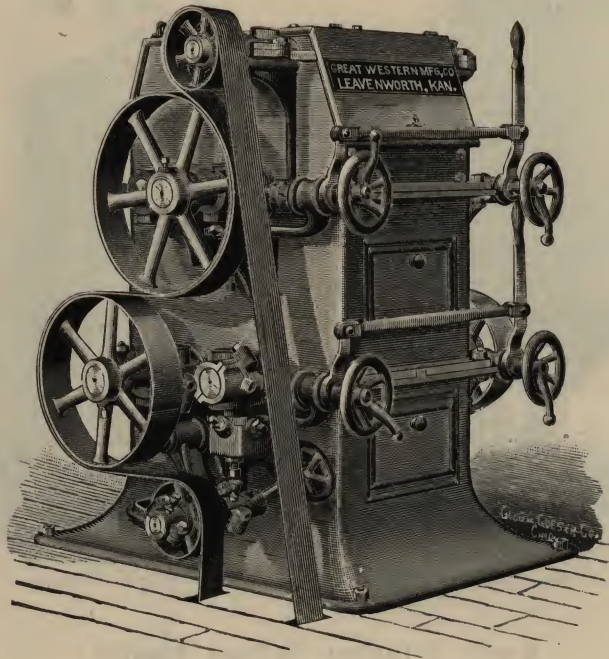
The heater is furnished complete with valves as shown.

Steam Generators

No.	Price	Diam.	Height	Weight	No.	Price	Diam.	Height	Weight
0	65.00	18"	44"	500	3	105.00	26"	54"	1200
1	85.00	22"	52"	850	4	125.00	28"	56"	1250
2	95.00	24"	54"	950	5	135.00	30"	58"	1400

Above prices include hand pump, all pipe connections between water barrel, pump and generator, steam gage, glass water gage, two gage cocks, one safety valve, one blow-off cock, one steam valve, three hand plates, one fusible plug, one smoke elbow, one set grates and base which forms ashpan. Anything else, extra. Will carry 60 lbs. pressure safely.

Circulars fully describing the above will be mailed on application.



Four Roller Corn and Feed Mills

TWO PAIR HIGH

Our Four Roller Corn and Feed Mill is built with two pairs of rolls, one immediately above the other. The stock after passing through the first pair of rolls, drops upon the second pair, which has finer corrugations that regrind the stock as fine as may be desired. By placing the lower pair of rolls immediately under the upper pair, the necessity of elevating the stock after the first reduction is obviated. The machine is suitable for grinding coarse or fine feed, mixed feed, corn meal or graham flour. When a very fine extra grade of meal is desired, this machine can be used in combination with our single two-roller mill. The stock, after being ground on the four-roller machine, can be elevated and sent to a scalper, where a separation of the bran and impurities is made from the meal and grits. The grits are then sent to the single roller mill with fine corrugations suitable for producing an excellent quality of high grade granular meal.

Our Corn and Feed Roller Mills are all driven by two belts, doing away with noisy gearing. There are no troublesome cross belts. Each belt is provided with an adjustable tightener working on the slack side of the belt, making the drive superior to that of any roller corn mill on the market.

Every machine is provided with an improved automatic shaker feed. Our Four Roller Corn Mill is built in sections, one section for each pair of rolls. Each section consists of a solid iron frame with a pair of rolls mounted in same. The sections are firmly fitted together, and so arranged that when desired the rolls can be taken out of the mill by removing the section above each pair of rolls. The sections are made interchangeable, so that if at any time it is desired to convert a four roller mill into a six roller machine, we can supply an extra section with necessary rolls and pulleys. This will often enable millers desiring to increase their capacity to avoid the necessity of purchasing an entire new machine of larger size.

We can arrange so that these mills can be driven from line shafts located above the machine.

DIMENSIONS AND PRICES

Size of Rolls.....	7 x 14	7 x 18	9 x 18	9 x 24	9 x 30
Dimensions over all.....	Length----- Width----- Height-----	3' 3" 4' 0" 4' 2"	3' 3" 4' 5" 4' 2"	3' 7" 4' 9" 4' 3"	3' 7" 5' 5" 4' 3"
Floor space.....	Length----- Width-----	3' 3" 2' 6"	3' 3" 2' 10"	3' 7" 2' 9"	3' 7" 3' 9"
Driving pulleys, fast side.....	Upper roll----- Lower roll-----	12 x 5½ 11 x 5½	12 x 6½ 11 x 6½	14 x 6½ 13 x 6½	14 x 7½ 13 x 7½
Driving pulleys, slow side.....	Upper roll----- Lower roll-----	16 x 5½ 15 x 5½	16 x 6½ 15 x 6½	18 x 6½ 17 x 6½	18 x 7½ 17 x 7½
Shaker feed pulley.....		7 x 5½	7 x 6½	6 x 6½	6 x 8½
Revolutions per minute, fast rolls.....	Upper roll----- Lower roll-----	700 763	700 763	500 538	500 538
Length driving belts above floor.....	Fast side----- Slow side-----	10' 0" 11' 6"	10' 0" 11' 6"	10' 6" 12' 0"	10' 6" 12' 0"
From floor to center of driving pulleys.....	Upper pulley----- Lower pulley-----	2' 10" 1' 6"	2' 10" 1' 6"	3' 0" 1' 6"	3' 0" 1' 6"
Weight.....		1850	2100	2800	4300
Price.....		530.00	575.00	650.00	735.00
Capacity, bushels per hour.....	Feed----- Meal-----	15 to 25 6 to 10	25 to 40 8 to 15	45 to 60 20 to 30	55 to 80 25 to 40
					70 to 100 30 to 45

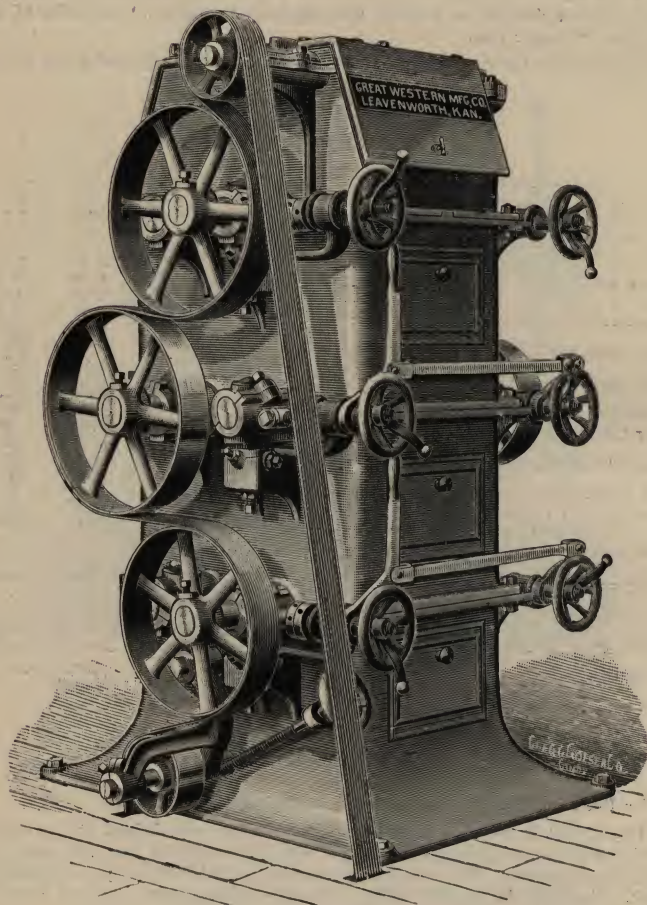
Two Roller Mills

Designed for Reducing Wheat or Middlings, or Grinding Corn and Feed.

Our Two Roller Mill is mounted in frame of same dimensions, height, etc., as our Four Roller Corn Mill, and has the same general appearance, with the exception that only one pair, the upper rolls, is mounted in the frame. The same feeder is used, but it is driven by an independent belt from the roller shaft. The Two Roller Mill will be furnished with smooth rolls for reducing middlings, or with corrugated rolls for grinding corn, wheat, etc., as desired.

PRICE LIST

Size of Rolls	Weight	Price	
		Smooth	Corrugated
7 x 14	1150	345.00	352.50
7 x 18	1300	375.00	382.50
9 x 18	1600	415.00	427.50
9 x 24	2000	465.00	482.50
9 x 30	2300	525.00	547.50



Six Roller Corn and Feed Mills

THREE PAIR HIGH

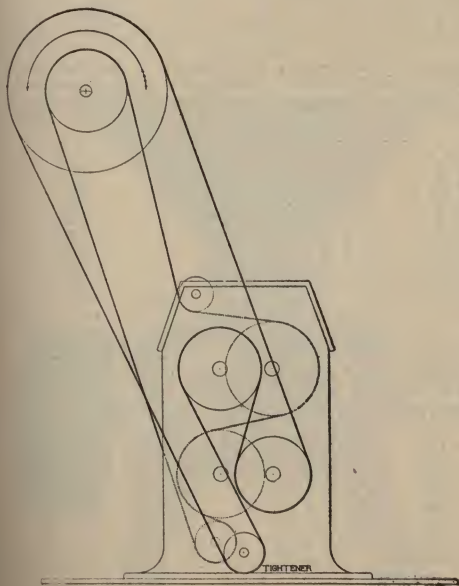
Our Six Roller Corn and Feed Mill with rolls three pair high is made after the same design as our Four Roller Corn Mill. It is suitable for mills where large capacity is required. Three reductions can be made on the stock without re-elevating, making a very economical mill for the manufacture of corn goods or feed.

When it is desired to make rye flour, the rye can be ground on one of these Six Roller Mills, and the ground chop elevated to a rye dresser, where the bran and middlings are separated from the

flour. The middlings are then sent to one of our Two Roller Mills with smooth rolls, for further reduction. This stock is then elevated to another rye dresser, where the flour is separated from the feed.

DIMENSIONS AND PRICES

Size of Rolls-----	7 x 14	7 x 18	9 x 18	9 x 24	9 x 30
Dimensions over all-----					
{ Length-----	3' 3"	3' 3"	3' 7"	3' 7"	3' 7"
{ Width-----	4' 0"	4' 6"	4' 11"	5' 7"	6' 0"
{ Height-----	5' 6"	5' 6"	5' 9"	5' 9"	4' 3"
Floor space -----					
{ Length-----	3' 3"	3' 3"	3' 7"	3' 7"	3' 7"
{ Width-----	2' 6"	2' 10"	2' 9"	3' 3"	3' 9"
Driving pulleys, fast side-----					
{ Upper roll---	12 x 5½	12 x 6½	14 x 7½	14 x 7½	14 x 8½
{ Middle roll---	11 x 5½	11 x 6½	13 x 7½	13 x 7½	13 x 8½
{ Lower roll---	10 x 5½	10 x 6½	12 x 7½	12 x 7½	12 x 8½
Driving pulleys, slow side-----					
{ Upper roll---	16 x 5½	16 x 6½	18 x 7½	18 x 7½	18 x 8½
{ Middle roll---	15 x 5½	15 x 6½	17 x 7½	17 x 7½	17 x 8½
{ Lower roll---	14 x 5½	14 x 6½	16 x 7½	16 x 7½	16 x 8½
Shaker feed pulley-----	7 x 5½	7 x 6½	6 x 7½	6 x 7½	6 x 8½
Revolutions per minute, fast rolls-----					
{ Upper roll---	700	700	500	500	500
{ Middle roll---	763	763	538	538	538
{ Lower roll---	839	839	583	583	583
Length driving belts above floor-----					
{ Fast side---	13' 6"	13' 6"	14' 0"	14' 0"	14' 0"
{ Slow side---	15' 6"	15' 6"	16' 6"	16' 6"	16' 6"
From floor to center of driving pulleys-----					
{ Upper pulley---	4' 2"	4' 2"	4' 6"	4' 6"	4' 6"
{ Middle pulley---	2' 10"	2' 10"	3' 0"	3' 0"	3' 0"
{ Lower pulley---	1' 6"	1' 6"	1' 6"	1' 6"	1' 6"
Weight -----	2600	3000	4000	4800	6100
Price -----	700.00	760.00	900.00	1000.00	1150.00
Capacity, bushels per hour-----					
{ Feed-----	20 to 30	30 to 50	55 to 80	75 to 100	90 to 125
{ Meal-----	10 to 20	20 to 35	30 to 60	40 to 75	50 to 80



The cut shows one style of driving Roller Corn Mill from shaft located above machine. Other styles of drives furnished to suit special locations.



Under Runner Geared Mill



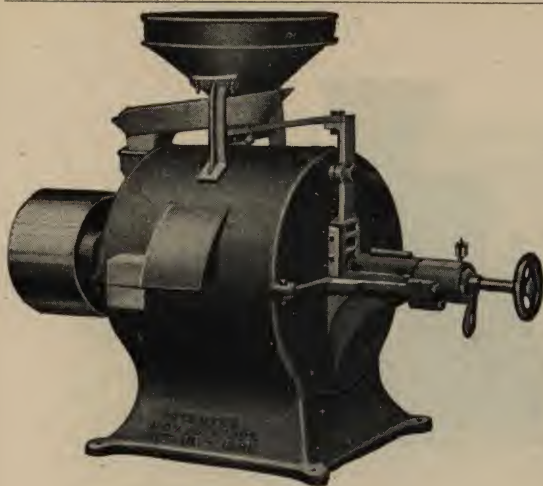
Under Runner Pulley Mill

Portable Under Runner Corn and Feed Mills

FRENCH BUHR STONE MILLS

Diam. of Stone	Price of Pulley Mill	Price of Iron Geared Mill	Price of Mortise Geared Mill	Pulley on Spindle of Pulley Mill	Pulley on Countershaft of Geared Mill	Revolutions per Minute of Pulley Mill	Revolutions per Minute of Countershaft of Geared Mill
15"	160.00	225.00	250.00	10 x 6	16 x 8	500	250
18"	180.00	240.00	270.00	12 x 8	16 x 8	500	250
22"	220.00	290.00	320.00	12 x 8	16 x 8	500	250
24"	250.00	330.00	360.00	12 x 8	16 x 8	500	250
26"	280.00	350.00	390.00	16 x 9	18 x 8	450	225
28"	310.00	380.00	420.00	18 x 10	20 x 10	450	225
30"	350.00	440.00	470.00	18 x 10	20 x 10	450	225
36"	450.00	540.00	570.00	20 x 10	20 x 12	400	200

Diam. of Stone	Horse Power	Capacity in Bushels per Hour Grinding Corn	Shipping Weight of Pulley Mills	Shipping Weight of Geared Mills	Floor Space Occupied by Pulley Mill	Floor Space Occupied by Geared Mill	Height
15"	2	04 to 08	600	700	2'8" x 2'8"	5'2" x 2'8"	55"
18"	4	10 to 12	750	875	2'8" x 2'8"	5'2" x 2'8"	55"
22"	6	12 to 15	1,050	1,200	3'4" x 3'4"	5'6" x 3'4"	56"
24"	7	14 to 18	1,150	1,300	3'4" x 3'4"	5'6" x 3'4"	56"
26"	8	15 to 20	1,250	1,400	3'8" x 3'8"	5'6" x 3'4"	58"
28"	9	18 to 22	1,650	1,850	3'8" x 3'8"	5'8" x 3'8"	60"
30"	10	20 to 25	1,750	1,950	3'8" x 3'8"	5'8" x 3'8"	60"
36"	12	25 to 30	2,200	2,400	4'0" x 4'0"	5'9" x 4'0"	60"



Export Mill



Cob Crusher

Export Vertical Corn and Feed Mills

FRENCH BUHR STONE MILLS

Size of Mill	Price	Horse Power Required	Capacity Bushels per Hour	Revolutions per Minute	Floor Space	Height	Pulley, Inches	Shipping Weight Pounds
9 Jr.	100.00	1½ to 2	2 to 8	1,000	30" x 18"	32"	6 x 3½	275
15	165.00	2 to 5	8 to 15	1,000	42" x 25"	37"	10 x 6½	900
18	200.00	6 to 10	15 to 30	1,000	46" x 28"	43"	12 x 8½	1,250
24	320.00	8 to 12	20 to 50	800	56" x 38"	54"	16 x 10½	2,200

Cob Crushers

DESIGNED TO BREAK DOWN HUSKED EAR CORN AND PREPARE IT FOR GRINDING ON A BUHR OR ROLLER MILL

No.	Price	Extreme Length	Extreme Height	Extreme Width	Space on Floor	Size Pulley	Horse Power Required	Capacity per Hour Bushels	Speed per Minute	Shipping Weight
14	40.00	33"	23"	21"	16" x 20"	12 x 5½	2 to 4	20 to 35	500 to 700	225
15	60.00	40"	26"	23"	18" x 24"	18 x 7½	4 to 8	40 to 70	500 to 700	425

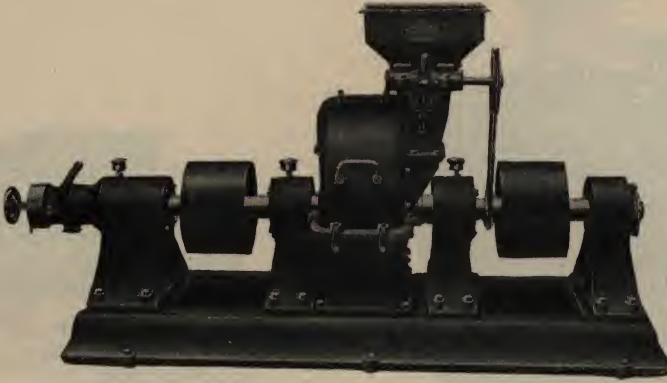
Cyclone Corn and Cob Crusher



This Crusher is not recommended for making corn meal. It, however, crushes the corn and cobs very fine, so very little work is required subsequently on buhrs or rolls to reduce them to meal. Floor space, 40"x23". Size of pulley, 16"x6". Speed of pulley, 150 to 300 revolutions. Weight, 350 pounds. Capacity, 30 to 60 bushels per hour, depending entirely upon the speed at which it is driven and the fineness of product desired.

Price----- 35.00

Send for Special Circular of this Machine.



Monarch Ball-Bearing Attrition Mills

This is the very latest and best in Attrition Mills, having the following special features:

A guaranteed saving of one-third in power over any other attrition mill. Power costs money. A saving in power means increased profits.

Impossible to get out of tram. Think of the time and annoyance this feature will save you.

Bearings absolutely dust proof. Ever have bearings cut out by dust and grit getting in them? No such trouble with the Monarch. Grease is used as a lubricant, being more economical and requiring less attention. Bearings guaranteed for one year.

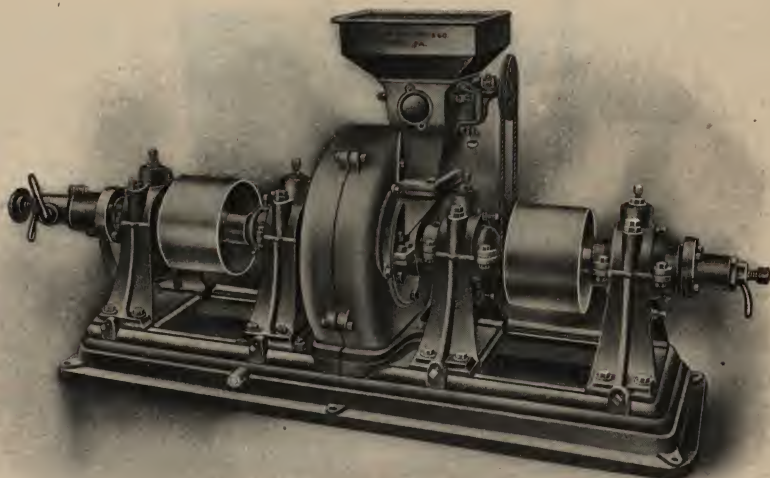
All parts interchangeable. If you meet with an accident, new parts will fit perfectly.

The adjustable end contains a safety spring which prevents heads from drifting together when running empty; a relief spring which allows the heads to separate when any foreign substance enters mill; and a quick release operated by hand lever shown in illustration.

Size	Price	Capacity, Pounds per Hour	Weight	Pulleys	Speed	Horse Power Required	
						Empty	Loaded
16"	500.00	1000- 2000	1000	8 x 6	2250	3	10 to 20
18"	550.00	1500- 3000	1200	10 x 6	2150	4	15 to 30
20"	580.00	1800- 3500	1250	10 x 8	2050	4	20 to 40
22"	600.00	2000- 4000	1750	12 x 8	1850	5	20 to 40
24"	650.00	2500- 5000	1800	12 x 8	1700	5	25 to 50
26"	900.00	3000- 5000	3100	14 x 10	1600	7	35 to 60
30"	1000.00	5000-10000	4000	16 x 10	1400	9	50 to 100
32"	1080.00	6000-10000	4200	16 x 10	1400	10	60 to 100

Size	Length Over All	Height Over All	Width Over All	Floor Space Base Occupies	From Floor to Center of Shaft	Center to Center of Pulleys
16"	73"	38"	26"	66" x 26"	13"	34"
18"	73"	38"	26"	66" x 26"	14"	34"
20"	73"	38"	26"	66" x 26"	14"	34"
22"	84"	42"	31"	75" x 31"	17"	42"
24"	84"	42"	31"	75" x 31"	17"	42"
26"	101"	45"	32"	87" x 32"	19"	47"
30"	102"	64"	40"	88" x 40"	22"	47"
32"	102"	64"	40"	88" x 40"	22"	47"

Send for special booklet of this mill.



Monarch Attrition Mills

CHAIN OILING BEARINGS

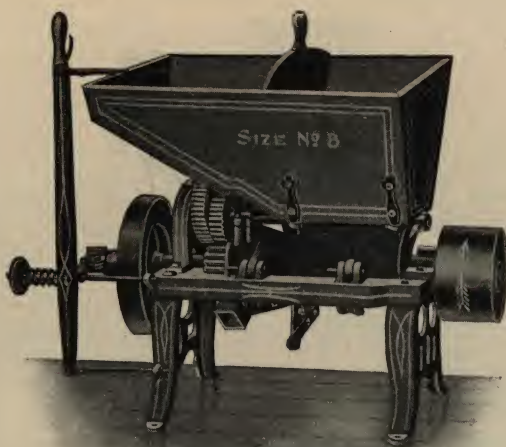
This mill is substantially built of the best material, with hammered steel shafts, genuine babbitt chain oiling bearings, quick release, and movable base for opening.

Monarch plates may be trammed or adjusted or new plates may be placed in the mill more quickly than is possible with any other mill. These plates are made of a special mixture of metal of extreme hardness and toughness, which makes them wear a long time. They are ground to an absolutely uniform size and thickness, permitting a nicety of adjustment which gives extreme fineness of grinding, when fine grinding is desired, and uniformity of grinding when medium or coarse grinding is needed.

Send for a booklet fully describing the good features of this mill.

Size	Price	Capacity, Pounds per Hour	Weight	Pulleys	Speed	Horse Power
16"	225.00	1000-1500	1000	8 x 7	2000	15 to 25
18"	250.00	1200-2500	1700	10 x 8	1900	20 to 30
20"	265.00	1500-2800	1800	10 x 8	1800	20 to 35
22"	280.00	2000-3500	1900	12 x 8	1700	25 to 45
24"	300.00	2500-4000	2000	12 x 8	1500	30 to 50
24"H.D.	350.00	2500-4000	2600	14 x 9	1500	30 to 50
26"	400.00	3000-4500	3600	14 x 10	1400	40 to 60
30"	500.00	4000-6000	4200	16 x 10	1300	60 to 100
32"	540.00	5000-6500	4400	16 x 10	1300	70 to 100

Size	Length Over All	Height Over All	Width Over All	Floor Space Base Occupies	From Floor to Center of Shaft	Center to Center of Pulleys
16"	82"	36"	22"	22" x 63"	13"	35"
18"	89"	38"	24"	24" x 68"	14½"	39"
20"	89"	38"	24"	24" x 68"	14½"	39"
22"	96"	43"	28"	28" x 75"	18"	42"
24"	96"	43"	28"	28" x 75"	18"	42"
24"H.D.	108"	44"	40"	33" x 89"	18"	48"
26"	117"	48"	36"	36" x 96"	19"	52"
30"	128"	62"	38"	38" x 107"	22"	61"
32"	128"	62"	38"	38" x 107"	22"	61"



Bowsheer Combination Grinding Mills

This Mill crushes corn and cob, and grinds all kinds of small grain, oats, rye, barley, screenings, cotton seed, shelled corn, etc.

The divided hopper makes it practicable to grind small grain while crushing ear corn, mixing and grinding the two together in any proportion desired. With other mills it is necessary first to crush the corn, then grind the small grain and mix the two. This consumes time and is wasteful. Others have attempted to grind small grain with ear corn by simply pouring it in with the ears. Any practical man knows the small grain will run through first, leaving the two substantially separate.

No. 10 Mill will crush and grind from 50 to 100 bushels per hour of shucked corn, or 40 to 80 bushels with shucks on; of shelled corn from 80 to 175 bushels per hour; of shelled corn and oats, mixed, from 75 to 150 bushels per hour; of cotton seed from 2,500 to 5,000 pounds per hour. Speed should be from 1,050 to 1,200 revolutions per minute. Requires from 16 to 25 horse power.

No. 9 Mill will crush and grind from 40 to 80 bushels per hour of shucked corn, or 30 to 60 bushels with shucks on; of shelled corn will grind 50 to 125 bushels per hour; of shelled corn and oats, mixed, from 40 to 100 bushels per hour; of cotton seed from 2,000 to 4,000 pounds per hour. Speed should be from 1,050 to 1,200 revolutions per minute. Requires from 12 to 18 horse power.

No. 8 Mill will crush and grind per hour of shucked corn from 20 to 50 bushels; of corn with shuck on, from 20 to 40 bushels; of small grain from 25 to 60 bushels; of cotton seed from 1,500 to 3,000 pounds per hour. Speed, 1,050 revolutions, though good work can be done at a greater or less speed, say 800 to 1,200 revolutions. Requires from 10 to 12 horse power.

No. 7 Mill will crush and grind from 15 to 40 bushels of shucked corn per hour, or will grind of small grain, such as shelled corn, oats, screenings, etc., from 20 to 60 bushels per hour. Speed should be 1,050, although good work can be done at a less or a greater speed, say 800 to 1,200 revolutions per minute. Requires from 8 to 12 horse power.

No. 4 Mill will crush and grind from 12 to 30 bushels per hour of shucked corn; of corn with shuck on, from 10 to 20 bushels per hour; of small grain, such as shelled corn, oats, screenings, barley, etc., from 15 to 40 bushels per hour. Speed should be 1,350 revolutions per minute, but good work can be done at 800 to 1,600 revolutions per minute. Power required, 6 to 8 horse power.

No. 3 Mill will crush and grind 12 to 25 bushels of shucked corn per hour, and will grind from 15 to 40 bushels of small grain per hour. Speed should be 1,350 revolutions per minute, but good work can be done at 800 to 1,600 per minute. Requires from 6 to 8 horse power.

No. 2 Mill. Capacity depends on power applied and ranges from 4 to 15 bushels of shucked corn and from 5 to 20 bushels of small grain per hour. Speed with two horses, from 450 to 700; with 4 to 6 horses, from 600 to 1,000, with 4 to 6 horse power engine, from 800 to 1,100 revolutions or more.

Nos. 2, 3 and 7 are not specially recommended for grinding unshucked corn, and if used for that purpose a less capacity must be expected.

No. 0 Mill. Capacity ranges from 4 to 12 bushels shucked ear corn per hour; from 5 to 15 bushels per hour of oats and shelled corn, mixed; from 5 to 20 bushels per hour of shelled corn. Speed with 2 H. P., 275; 3 H. P., 375; 4 H. P., 550. This mill cannot be used for grinding corn in the shuck.

Bowsher Grinding Mills

THE "A" SERIES

All the regular sizes are "Combined" Mills; that is, in addition to grinding all kinds of small grain, they also crush and grind ear corn. In some localities, however, we find customers who have small grain only to grind, or who prefer to grind corn and cob after it has been broken up on a coarse crusher. To accommodate this class of customers, the "A" Series is built.

The chief difference between a regular mill and an "A" mill is, that the latter has no provision for crushing ear corn. The "A" mill will grind corn and cob in a first-class manner after it has been broken up on a coarse crusher.

No. 7 A Mill will grind the crushed corn and cob from 15 to 40 bushels per hour; or will grind of small grain, such as shelled corn, oats, barley, screenings, etc., from 20 to 60 bushels per hour. Power required, from 8 to 12 H. P. Speed should be from 1,050 to 1,200 revolutions per minute.

No. 10 A Mill will grind of shelled corn, from 80 to 175 bushels per hour; of shelled corn and oats, mixed, from 75 to 150 bushels per hour; of cotton seed, from 2,500 to 5,000 pounds per hour. Speed should be from 900 to 1,200 revolutions per minute. Requires from 16 to 25 horse-power.

PRICE LIST

No.	Prices		Weights		Pulley	Floor Space	
	Pulley Mill	Gearred Mill	Pulley Mill	Gearred Mill		Mill only	Mill with Elevator
10	200.00		1060		12 x 12	6' 3" x 2' 10"	6' 8" x 6' 0"
10A	160.00		840		12 x 12	5' 0" x 2' 6"	5' 0" x 5' 8"
9	150.00		850		10 x 10	6' 0" x 2' 9"	6' 0" x 5' 10"
8	100.00	108.00	600	660	8 x 8½	4' 7" x 2' 6"	4' 7" x 5' 5"
7	90.00	98.00	500	550	8 x 8½	4' 7" x 2' 6"	4' 7" x 5' 5"
7A	75.00		450		8 x 8½	4' 0" x 2' 0"	4' 0" x 5' 0"
4	70.00	77.50	375	420	8 x 6½	3' 11" x 2' 3"	3' 11" x 5' 2"
3	60.00	67.50	305	350	8 x 6½	3' 7" x 2' 3"	3' 7" x 5' 2"
2	48.00	55.00	240	280	8 x 6½	3' 3" x 1' 10"	3' 3" x 5' 2"
2X	53.00		340		8 x 6½	3' 7" x 2' 0"	3' 7" x 3' 4"
0	35.00		215		10 x 4½	3' 6" x 1' 8"	3' 6" x 3' 10"

The No. 2X Mill is same as regular No. 2 except it has an extra balance wheel weighing 100 lbs., which is desirable when light power is used.

Elevators

Descriptions	For Mills No.	Weight	Price
Eight-foot Sacking Elevator with 6" belt and cups	9, 10, 10A	150	26.00
Seven-foot Sacking Elevator with 5" belt and cups	8	120	20.00
Seven-foot Sacking Elevator with 4" belt and cups	8, 7, 7A, 4, 3, 2	110	18.00
Four-foot Sacking Elevator with 4" belt and cups	2	70	10.00
Four-foot Sacking Elevator with 2½" belt and cups	0	35	9.00
Wagon Box Elevator with 6" belt and cups	9, 10, 10A	185	33.00
Wagon Box Elevator with 5" belt and cups	8	155	27.00
Wagon Box Elevator with 4" belt and cups	8, 7, 7A, 4, 3, 2	145	24.00
Sacking Spout Attachment for wagon box elevator		30	3.00

Repairs

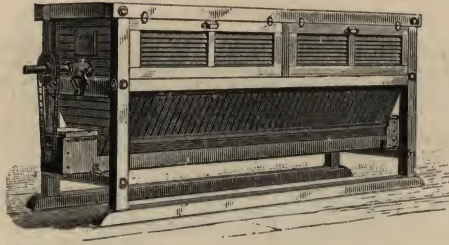
No. of Mill	10	9	8	7	4	3	2	0
Grinders, full set	6.00	5.00	3.00	3.00	2.00	2.00	1.50	1.25
Crusher concave	1.50	1.25	.75	.75	.40	.40	.30	1.25
Crusher Knives, each	.60	.60	.60	.60	.60	.60	.60	

Improved Kaffir Attachments

FOR FEEDING KAFFIR CORN IN THE HEAD

Bowsher Mills will feed and grind threshed Kaffir corn kernels without any special equipment, but when the Kaffir corn in the head is to be handled the special attachment is necessary. It is only made for the Nos. 4, 8, 9 and 10 mills.

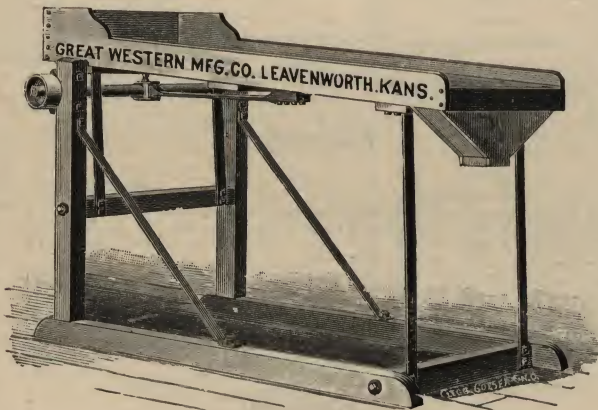
Number of Mill	4	8	9	10
Improved Kaffir Head Feeder with all parts necessary to attach to mill in use	40.00	45.00	50.00	55.00
Mill complete with improved Kaffir Head Feeder, but without regular Hopper	100.00	130.00	177.00	230.00
Mill complete with Improved Kaffir Head Feeder with regular Hopper crated and shipped extra with it, together with all necessary parts.	106.00	145.00	195.00	250.00



Corn Meal Bolts

Reel		Price	Weight	Frame			Length Over All	Sprocket for 45 and 55 Chain	Floor to Center of Sprocket	Revolutions
Length	Diam.			Length	Height	Width				
5'	24"	100.00	350	6'	3'8"	2'6"	7'3"	12"	2'7"	36
6'	24"	110.00	400	7'	3'8"	2'6"	8'3"	12"	2'7"	36
7'	24"	120.00	450	8'	3'8"	2'6"	9'3"	12"	2'7"	36
8'	24"	125.00	575	9'	3'8"	2'6"	10'3"	12"	2'7"	36
6'	32"	130.00	500	7'	5'2"	3'5"	8'3"	12"	3'8"	28
8'	32"	150.00	750	9'	5'2"	3'5"	10'3"	12"	3'8"	28

If desired, a pulley 12"x34" will be substituted on reel shaft in place of sprocket wheel.



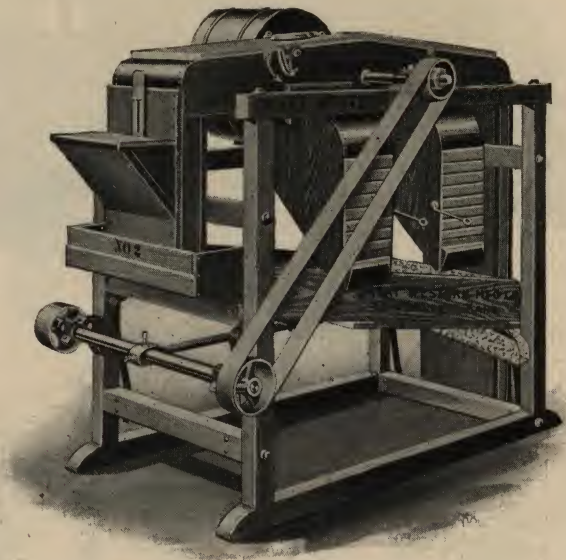
Corn Meal Sieves

Number	Price	Weight	Length	Width	Height	Pulley	Speed
1	25.00	85	2'6"	18"	3'3"	4 x 2 1/4	600
2	28.00	95	3'6"	18"	3'3"	4 x 2 1/4	600
3	30.00	105	4'0"	24"	3'3"	4 x 2 1/2	600
4	35.00	115	5'0"	24"	3'3"	4 x 3	600
5	40.00	125	6'0"	24"	3'3"	4 x 3	600

(Height can be reduced to 2 feet if desired)

Scalping and Receiving Shoes

Same style, sizes and prices as Corn Meal Sieve, but furnished with suitable screens for any desired kind of grain.



Great Western Corn Cleaners

The above cut illustrates our Improved Great Western Corn Cleaner which is used as a second cleaner for shelled corn to remove sticks, straws, pieces of cobs, silks, dust, etc. The grain is spouted to the pocket shown at head of machine, where it is subjected to the first suction from fan as it falls on head of sieve or screen. The screen is clothed with perforated metal with holes of proper size to separate broken cobs, sticks, etc., allowing the grain to fall through and on to another sieve or sand screen, the latter being an added feature. The coarser offal tails off on one side, and the sand and dirt on opposite side, while the corn is discharged into the separating trunk at end of machine where a second aspiration takes place. This finishes the cleaning process, and corn is ready for grinding.

Two settling chambers are connected with the fan trunk for assembling 1st and 2nd screenings, all connected with valves to govern the suction.

This machine can also be used for handling wheat and other small grain, when clothed with properly perforated screens.

Number	Price	Weight	Capacity, Bushels per Hour	Size of Pulley	Revolutions per Minute
1	75.00	250	25	6 x 3 $\frac{1}{2}$	600
2	100.00	350	40-50	6 x 3 $\frac{3}{4}$	550
3	125.00	-----	75-100	6 x 4 $\frac{1}{2}$	525

Number	Extreme Dimensions			Size on Floor	Height, Floor to Center of Pulley
	Length	Width	Height		
1	5' 2"	2' 11"	5' 3"	2' 1 $\frac{1}{2}$ " x 4' 4"	4' 5"
2	6' 2"	3' 5"	5' 3"	2' 7 $\frac{1}{2}$ " x 5' 4"	4' 5"
3	7' 2"	3' 8"	5' 8"	2' 7 $\frac{1}{2}$ " x 6' 4"	4' 9"



Western Warehouse Shellers WITH ADJUSTING LEVER

No.	Price	Capacity in Bushels per Hour	Extreme Height of Hopper	Space on Floor Over all	Size Pulleys		Rev. per Minute	Weight
					Diam.	Face		
11	275.00	1600-2000	26 $\frac{1}{2}$ "	8'0" x 3'9"	26"	12"	420	2000
12	225.00	1200-1500	26 $\frac{1}{2}$ "	7'1" x 3'9"	24"	12"	420	1850
13	175.00	800-1000	23 $\frac{1}{2}$ "	6'9" x 3'2"	20"	10"	500	1350
14	150.00	400-600	20"	4'4" x 2'5"	16"	8"	550	700
15	120.00	250-350	20"	4'2" x 2'3"	12"	8"	600	600
16	100.00	175-225	19"	4'2" x 2'3"	12"	6"	600	500
17	80.00	125-150	21"	3'7" x 2'7"	10"	6"	800	350

The three larger capacity Machines, Nos. 11, 12 and 13, are provided with Extended Frame, and Extra Bearing outside of Pulley. Any Sheller can be built with Pulley or Adjusting Lever on either end.

In ordering state whether machine should turn to the right or left as you stand facing the hopper end.



Left Hand Over Discharge

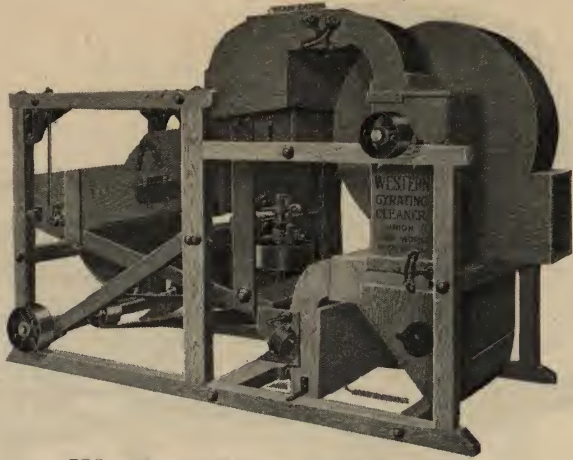
Western Pitless Shellers

This machine is built to supply the demand for a sheller that will discharge directly into the elevator boot, thereby obviating the necessity of a deep pit or tank under your house.

A feature of the Pitless Sheller is that it is adjustable, and can be changed in a few minutes to discharge either to the right or left, under or over.

No.	Price	Capacity in Bushels per Hour	Extreme Height of Hopper	Space on Floor Over all	Size Pulleys		Rev. per Minute	Weight
					Diam.	Face		
22	240.00	1200-1500	28"	6'9" x 3'2"	20"	12"	500	1650
23	200.00	800-1000	28"	6'4" x 3'2"	20"	10"	500	1550
24	170.00	400-600	24 $\frac{1}{2}$ "	5'8" x 2'9"	16"	8"	550	1000
25	140.00	250-350	23"	5'6" x 2'5"	14"	8"	600	900

In ordering state whether the machine must turn to the right or left as you stand facing the hopper end, whether over or under discharge, and from which end you will drive.

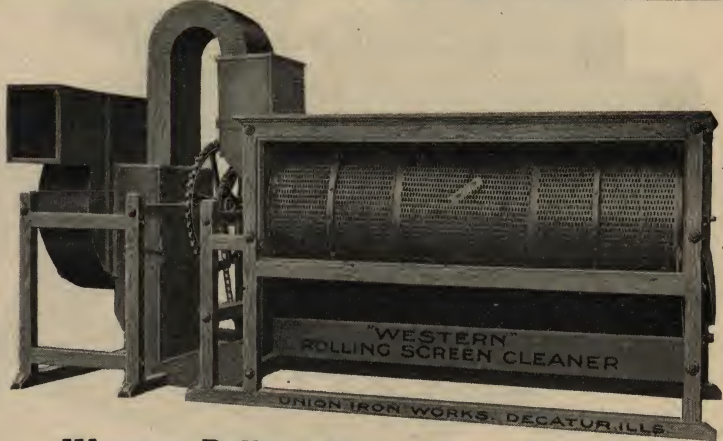


Western Gyrating Cleaners

No.	Price	Capacity per hour in Bu.			Height	Length	Width	Pulley	Speed R. P. M.	Weight
		Corn and Cobs	Oats	Wheat						
30	750.00	2000-2400	1800	1500	7' 6"	18' 2"	7' 5"	12" x 8"	550	2900
31	650.00	1600-2000	1500	1200	7' 6"	13' 2"	6' 5"	12" x 8"	550	2200
32	500.00	1200-1500	1200	1000	6' 11"	11' 10"	6' 1"	12" x 6"	550	1850
33	375.00	800-1000	1000	700	6' 8"	11' 0"	5' 9"	12" x 6"	550	1700
34	325.00	400- 600	600	500	6' 6"	10' 5"	5' 5"	12" x 6"	550	1600
35	275.00	250- 350	500	425	6' 5"	9' 7"	5' 1"	12" x 6"	550	1400
36	225.00	175- 225	300	200	6' 0"	9' 0"	4' 9"	12" x 6"	550	1100

NOTE—The width dimension given above includes entire width of machine and pulleys.
The machine is furnished regularly with screens for handling Corn with Cob and re-cleaning Corn and Oats. The Cleaner is a most excellent Wheat machine when fitted with screens as listed below.

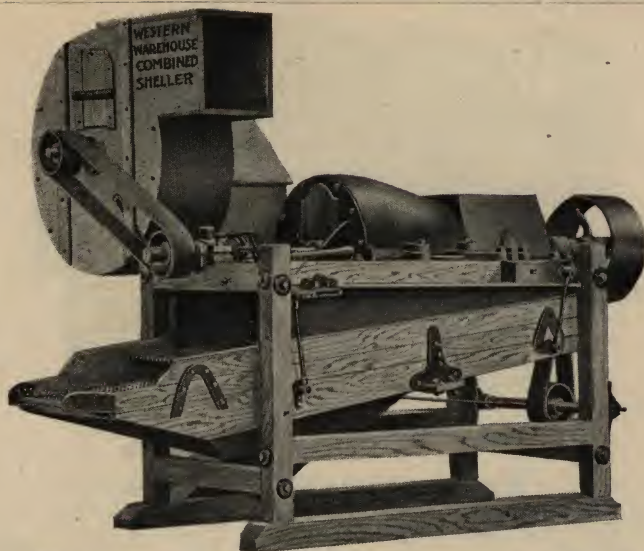
Size of Machine.	30	31	32	33	34	35	36
Sieves for Small Grain.	36.00	32.00	28.00	24.00	16.00	14.00	12.00



Western Rolling Screen Corn Cleaners

No.	Price	Capacity per Hour in Bushels	Weight	Size Wheel on Screen	Rev. of Screen	Size Pulley on Fan	Rev. of Fan	Extreme Height	Space on Floor Over all
0	325.00	800-1000	1850	30"	26	6" x 7"	600	5' 8"	15'6" x 5'0"
1	280.00	400- 600	1650	30"	26	6" x 7"	600	5' 8"	14'4" x 5'0"
2	240.00	250- 350	1400	30"	26	6" x 7"	600	5' 4"	12'8" x 4'8"
2½	200.00	175- 225	1300	30"	26	6" x 7"	600	5' 4"	12'0" x 4'8"

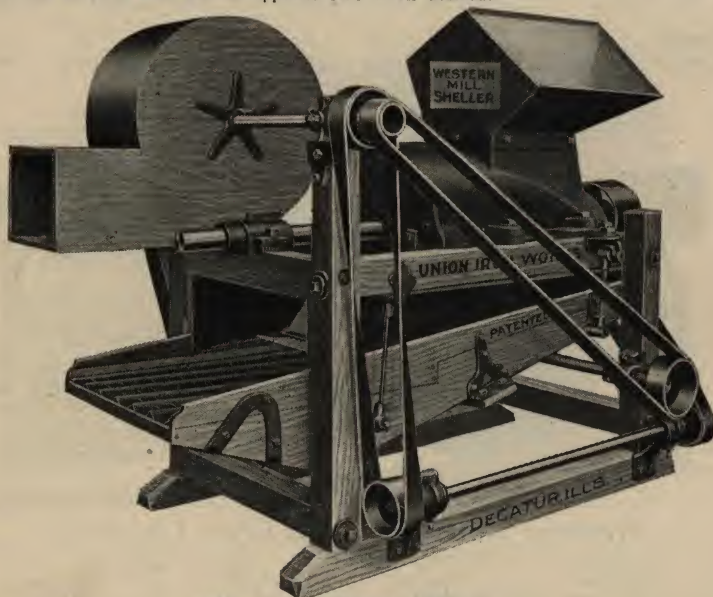
In ordering, specify whether machine turns to right or left as you face fan end; state whether fan is to be over or under discharge, and which direction from cleaner it must discharge.



Western Warehouse Combined Shellers

No.	Price	Capacity per Hour in Bushels	Extreme Height Over Fan	Extreme Height of Hopper	Space on Floor Over all	Size Pulleys		Rev. per Minute	Weight
						Diam.	Face		
2½	400.00	400-600	5' 10"	4' 4"	8' 0" x 5' 4"	20"	8"	500	1400
4	825.00	250-350	5' 5"	3' 8"	7' 9" x 4' 10"	16"	8"	500	1100
4½	250.00	175-225	4' 9"	3' 0"	6' 7" x 4' 4"	10"	6"	600	850
5	180.00	125-150	4' 8"	2' 11"	6' 6" x 4' 3"	10"	6"	600	750

Machine can be built with fan on opposite side when desired.

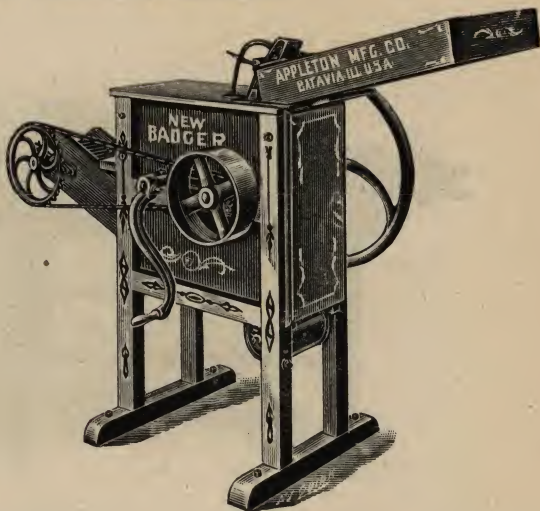


Western Mill Sheller

Price	Extreme Height	Space on Floor	Size Pulley	Revolutions per Minute	Weight	Capacity in Bushels per Hour	Horse Power
120.00	3' 9"	4' 4" x 26"	8" x 5"	600	650 lbs.	60 to 75	3 to 4

Badger Two-Hole Sheller

Size of pulley, 10" diameter, 3" face. Speed required, 250 revolutions per minute. Power required, one to two horse. Capacity, 35 to 45 bushels. It is furnished complete with cob rake, cleaning fan, feed table, crank, and pulley.



	Weight	Price
Sheller only	275	23.00
With Sacking Elevator	365	37.00
With Wagon Box Elevator	410	39.00

Royal One-Hole Sheller



The only one that will not throw out the corn with the cob, that does not break the cob, that has a hand wheel for regulating springs, that has a continuous cast frame for all boxes, that shells perfectly clean, and that commands the trade at a greater price. It is unquestionably the most successful and popular Hand Corn Sheller made. Strong, durable, and handsomely finished.

NOTICE—We always send the plain Sheller, unless otherwise ordered. Always specify what extras are needed, if any.

	Weight	Price
Royal One-Hole Sheller, plain	135	8.00
Table, extra	8	.40
Fan, extra	9	.80
Pulley (8" diameter, 2" face), extra	3	.50



No. 2 Machine

Beall Degerminators

Used in corn, cereal, hominy and grits mills to break and hull corn and remove germ therefrom. Its saving of power is enormous. It is unusually durable, has large capacity, and is instantly adjustable to break and scour corn as needed.

The Beall Degerminator breaks the corn evenly, takes off all of the hull and extracts the germ. It extracts the germ so thoroughly that the finished corn goods contain but a small per cent of oil, and command a high price.

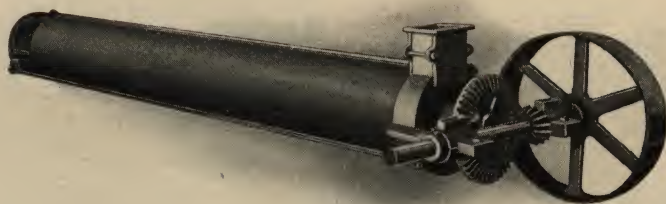
The construction of the degerminator is such that a large or small amount of corn will pass through it with equal ease. This prevents intense friction, saves lots of power, and makes the machine wear a long time. The intense friction generated in other degerminators, rubs the edges off of the broken grains, thus wasting much good stock.

The Beall Degerminator will help make fine corn goods at less expense than is possible with any other degerminator, because it makes less feed, costs less to keep in repair, and saves a great deal of power that is wasted in other degerminators. It runs cool. It does not choke down or have hot boxes. If the stock should back up to it from the spout underneath, the operator can throw it wide open instantly and prevent it choking down.

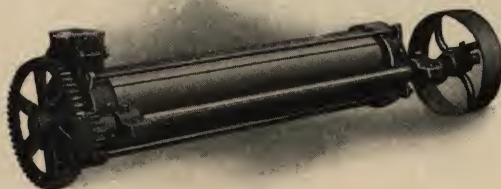
The No. 0 and No. 1 machines do not have the extra pair of legs and bearing to support driving pulley shown in cut above, but these items can be furnished at an additional cost of 15.00.

Size	Price	Capacity, Bu. per Hour	Weight	Pulley	Speed	Height to Driving Shaft	Floor Space	Height Over All	Length Over All
0	200.00	10-20	700	10 x 9	700	26 $\frac{1}{2}$ "	30" x 34"	2' 8"	4' 6"
1	325.00	20-40	900	12 x 9	650	27 $\frac{1}{2}$ "	28" x 32"	2' 9"	4' 10"
2	450.00	40-80	1250	15 x 10	600	25 $\frac{1}{2}$ "	30" x 58"	3' 0"	6' 4"

We have a special circular of this machine to send you on request.



With Countershaft Box End Drive



Drive Regularly Furnished

Beall Horizontal Corn Steamers

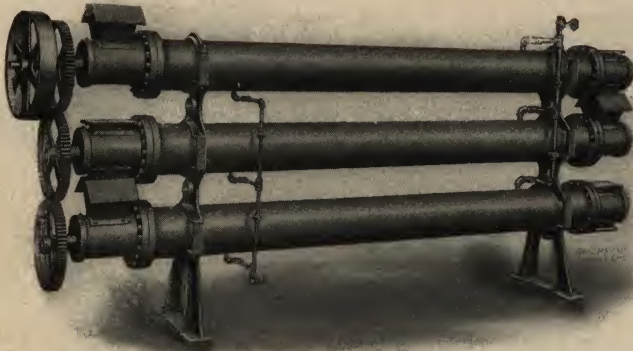
Before going to the degerminator the corn is run through the corn steamer where it is steamed just enough to permit the degerminator to thoroughly remove the hull. The degree of steam or water to be used depends entirely upon the condition of the corn and can be learned only by experimenting.

The flights on the shaft thoroughly mix the corn while conveying it towards the discharge end. The corn does not slide around and around the shaft as with a conveyor, but is tumbled over and thoroughly mixed together. This insures much more even tempering than is possible where conveyors are used.

Water can also be used in this steamer and the corn made as wet as desired. Iron supports are furnished which can be used above, below, or at one side.

This steamer is also used for steaming wheat, barley, oat groats, etc.

Size	Price	Capacity, Bu. per Hour	Weight	Pulley	Speed of Pulley	Speed Shaft with Flights	Height Over All	Length Over All
0	75.00	10- 25	300	10 x 3	150	45-60	16"	50"
1	85.00	25- 50	350	12 x 3	150	45-60	16"	62"
2	100.00	50- 85	400	14 x 3	150	45-60	16"	74"
3	125.00	50-110	600	16 x 6	150	45-60	16"	110"
4	150.00	50-150	950	18 x 6	150	45-60	16"	134"



No. 3 Three Cylinder Dryer

Great Western Meal Dryers

Size	Number of Cylinders	Price	Capacity, Bushels	Size of Sprocket Wheel or Pulley	
0	1	250.00	10 to 15	18"	No. 67 or 20 x 4
1	1	300.00	20 to 30	18"	No. 67 or 20 x 5
2	2	400.00	40 to 60	18"	No. 67 or 24 x 6
3	3	600.00	65 to 90	18"	No. 67 or 28 x 6

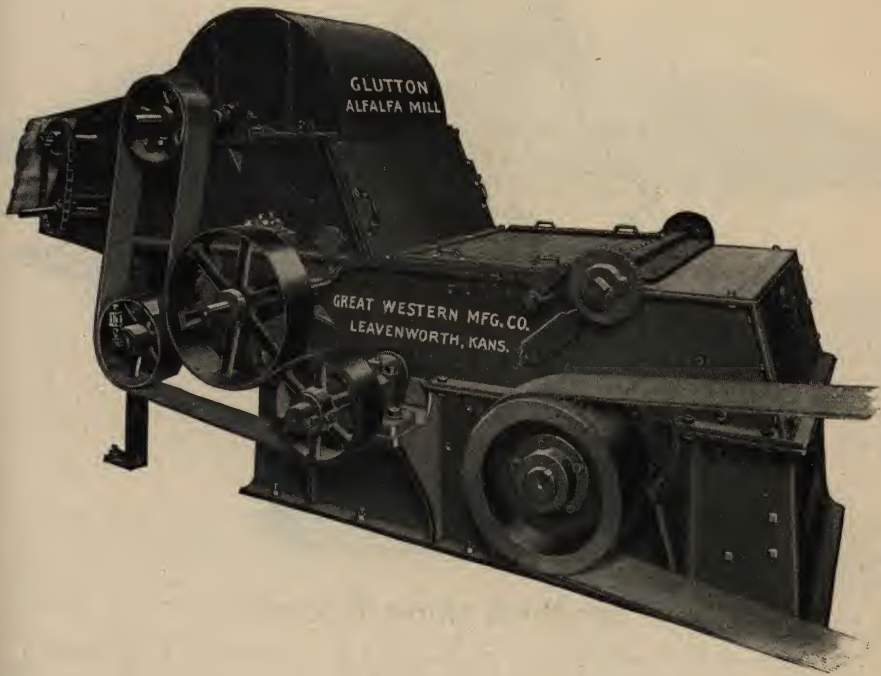
Size	Speed	Length Over All	Width Over All	Height to Feed Inlet	Weight
0	30 to 35	14' 6"	1' 4"	1' 11"	700
1	30 to 35	14' 6"	2' 0"	2' 3"	1000
2	30 to 35	14' 6"	2' 0"	3' 8"	2150
3	30 to 35	14' 6"	2' 0"	5' 2"	3200

The capacity of the Dryer will depend in some measure upon the condition of the corn and upon the steam pressure of the boiler, thus:

20 pounds pressure gives 230 degrees Fahrenheit.
 30 pounds pressure gives 250 degrees Fahrenheit.
 75 pounds pressure gives 300 degrees Fahrenheit.
 100 pounds pressure gives 330 degrees Fahrenheit.
 125 pounds pressure gives 350 degrees Fahrenheit.

We recommend in all cases that a small suction fan be used to remove from the machine the moisture evaporated from the meal, and discharge it outside the building. This moisture, if allowed to escape in the mill, is a constant source of annoyance. A suction fan also increases the efficiency of the machine.

We recommend a Buffalo "B" Exhauster of suitable size, listed on page 372; or, we can furnish a suction fan, consisting of wood case, shaft boxes, pulley and iron fan spider, ready to mount in wood frame, for 15.00.



Glutton Alfalfa Mill

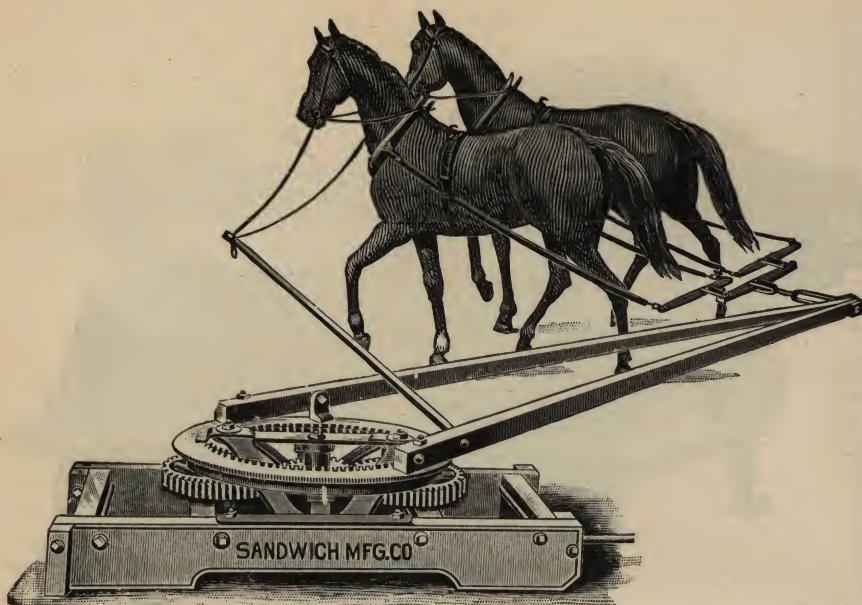
Primarily the Glutton is a shredding machine. There is no approach to attrition. No attempt to sharpen any of its roughened surfaces with a belief they could be kept sharp enough to cut. Also primarily it is a Gradual Reduction machine and the meal is taken out of and away from the machine the moment it is made.

From the time the alfalfa enters the machine (loose or mats from bales) it is subject to CONTINUOUS REDUCTION and the tearing and shredding force is increasing rapidly in intensity as the disintegrating and disintegrated mass passes through it. This is accomplished by two factors, increase of speed and diminution of passage through which the mass must travel; or go to the packer.

Let us look at the nature of alfalfa. The leaf portion is delicate; the stem portion is tough. Hence it is obvious you will make some meal very quickly, also that what is made should immediately be taken to the packer as it is made. The Glutton does this. It is equally obvious that the stems or the bush, grading from small stems on which the leaves grew down to the butt where the alfalfa is cut will vary greatly in their resistance to disintegration. HENCE WE NEED RAPIDLY INCREASING SEVERITY IN OUR DISINTEGRATING SYSTEM THROUGH THE MACHINE. THE GLUTTON HAS IT.

The accepted method of rating the capacity of alfalfa mills seems to be to say so many pounds of meal in an hour in good, dry hay. Accepting this method we will say 4,000 pounds of meal in an hour in good, dry hay. Capacity, owing to the great variation in the condition of the alfalfa as to brittleness or toughness, and these conditions constantly varying with every change of weather, is a hard thing to state truthfully and intelligently. Let us state it this way: Comparative capacity. IN LIKE HAY THE GLUTTON WILL GIVE YOU FROM 50 TO 100 PER CENT MORE MEAL FOR THE HORSEPOWER EXPENDED THAN ANY OTHER ALFALFA MILL GRINDER OR DISINTEGRATOR NOW ON THE MARKET.

A special circular describing this mill will be sent on application.



Sandwich Horse Powers

No. 1. Four-Horse Single Geared Power. Tumbling rod makes $11\frac{1}{2}$ revolutions to one round of horses, or about 40 revolutions per minute. Weight 855 lbs. Price.....	45.00
No. 2. Four-Horse Double Geared Power. Connecting with the first shaft gives $10\frac{1}{2}$ revolutions of tumbling rod to one round of horses, or about 38 revolutions per minute. Connecting with second shaft gives tumbling rod 25 revolutions to one round of horses, or about 90 revolutions per minute. Weight 960 lbs. Price.....	55.00
No. 5-A. Two-Horse Single Geared Power. Tumbling rod makes 10 revolutions to each round of horses. Weight 520 lbs. Price.....	26.50
No. 5-B. Two-Horse Double Geared Power. Connecting with first shaft gives 10 revolutions of tumbling rod to one round of horses. Connecting with second shaft gives tumbling rod 35 revolutions to one round of horses. Weight 590 lbs. Price.....	28.50
No. 6. Two-Horse Samson Power, single sweep. Tumbling rod makes 41 revolutions to one round of horses. Weight 725 lbs. Price.....	32.50
No. 7. One-Horse or Pony Single Geared Power. Tumbling rod makes 7 revolutions to one round of horse, or about 28 revolutions per minute. Weight 400 lbs. Price.....	25.00
No. 8. One-Horse Fast Motion Veteran Power. Tumbling rod makes $22\frac{1}{2}$ revolutions to one round of horse, or about 90 revolutions per minute. Weight 425 lbs. Price.....	28.00
No. 14. Four-Horse Samson Power. Tumbling rod makes 44 revolutions to one round of horses, or about 130 revolutions per minute. Weight 1,060 lbs. Price.....	60.00
No. 16. Four-Horse Single Geared Power. Tumbling rod makes 41 revolutions to one round of horses or about 140 revolutions per minute. Weight 885 lbs. Price.....	40.00
No. 17. Two-Horse Samson Power, double sweep. Tumbling rod makes 41 revolutions to one round of horses. Weight 845 lbs. Price.....	40.00
No. 19. Four-Horse Double Geared Power. This can be geared to obtain several different speeds. Weight 845 lbs. Price.....	45.00

Prices of Nos. 1, 2, 5-A, 5-B, 7, 8 and 17 powers include levers, 10-foot tumbling rods, two knuckles and tumbling rod rest. The No. 6 power has a 14-foot tumbling rod. The No. 14 power has one 5-foot and one 10-foot tumbling rod, three knuckles and two rod rests. The Nos. 16 and 19 have 12-foot tumbling rods.

GREAT WESTERN

Great Western Wagon Scales

WITH FULL STEEL TRUSSED LEVERS

No.	Capacity, Tons	Platform	Double Beam	Compound Beam	No.	Capacity, Tons	Platform	Double Beam	Compound Beam
144	3	8'0" x 14'0"	155.00	170.00	152	10	8'4 1/2" x 16'0"	315.00	330.00
145	4	8'0" x 14'0"	180.00	195.00	153	15	8'4 1/2" x 16'0"	405.00	420.00
146	5	8'0" x 14'0"	210.00	225.00	154	6	8'0" x 22'0"	280.00	295.00
147	6	8'0" x 14'0"	240.00	255.00	155	8	8'0" x 22'0"	330.00	345.00
148	8	8'0" x 14'6"	290.00	305.00	156	10	8'0" x 22'0"	375.00	390.00
149	10	8'0" x 14'6"	315.00	330.00	157	15	8'0" x 22'0"	435.00	450.00
150	6	8'4 1/2" x 16'0"	265.00	280.00	158	20	8'0" x 22'0"	560.00	575.00
151	8	8'4 1/2" x 16'0"	290.00	305.00					

Great Western Pitless Scales

Prices below include Compound Beam, Beam Box and Steel Frame complete, customer to furnish nailing strips and plank for platform.

This scale is becoming very popular for the reason that it requires no pit. It is so constructed that the elevation above ground is only a little more than the pit scale. This scale can be moved from place to place if necessary without much trouble, which is an advantage over the pit scale especially for farm purposes.

Number	Capacity, Tons	Platform	Price
159	4	8'0" x 14'0"	200.00
160	5	8'0" x 14'0"	210.00
161	6	8'0" x 14'0"	230.00

Great Western Dump Scales

No.	Capacity, Tons	Platform	Double Beam	Compound Beam	No.	Capacity, Tons	Platform	Double Beam	Compound Beam
162	4	8'0" x 14'6"	210.00	225.00	167	6	8'0" x 16'4 1/2"	290.00	305.00
163	5	8'0" x 14'6"	240.00	255.00	168	8	8'0" x 16'4 1/2"	300.00	315.00
164	6	8'0" x 14'6"	280.00	295.00	169	6	8'0" x 22'0"	310.00	325.00
165	4	8'0" x 16'4 1/2"	220.00	235.00	170	8	8'0" x 22'0"	320.00	335.00
166	5	8'0" x 16'4 1/2"	250.00	265.00	171	10	8'0" x 22'0"	350.00	365.00

Our Dump Scales are furnished with adjustable corner irons for leveling platform. Wagon dump irons not included in price of scales.

Fairbanks Wagon Scales

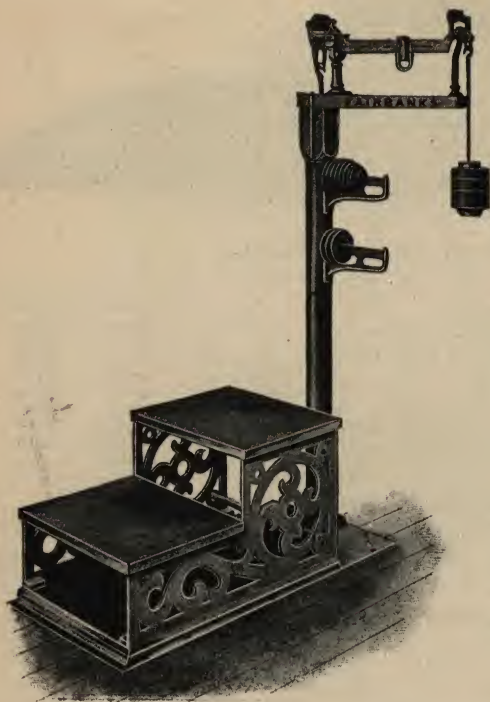
No.	Cap'city, Tons	Platform	Single Beam	Double Beam	O'mp'd Beam	No.	Cap'city, Tons	Platform	Single Beam	Double Beam	O'mp'd Beam
1822	20	22' x 7'11"	545.00	560.00	575.00	1928	10	16' x 7'10"	300.00	315.00	330.00
1922	20	14' x 8' 4"	450.00	465.00	480.00	1928	10	14' x 8' 5"	300.00	315.00	330.00
1803	15	22' x 10'	530.00	545.00	560.00	1845	8	22' x 7' 3"	315.00	330.00	345.00
1824	15	22' x 7'11"	420.00	435.00	450.00	1980	8	16' x 7'10"	275.00	290.00	305.00
1838	15	22' x 7' 3"	420.00	435.00	450.00	1980	8	14' x 8' 5"	275.00	290.00	305.00
1924	15	16' x 7'10"	390.00	405.00	420.00	2101	6	22' x 8'	265.00	280.00	295.00
1926	12	14' x 8' 4"	320.00	335.00	350.00	1932	6	16' x 7'10"	250.00	265.00	280.00
1806	10	22' x 10' 4"	365.00	380.00	395.00	2110	6	14' x 8'	225.00	240.00	255.00
1829	10	22' x 7'11"	360.00	375.00	390.00	2112	5	14' x 8'	200.00	210.00	220.00
1843	10	22' x 7' 3"	350.00	365.00	380.00	2114	4	14' x 8'	170.00	180.00	190.00

Fairbanks Dump Scales

No.	Capacity, Tons	Platform	Single Beam	Double Beam	No.	Capacity, Tons	Platform	Single Beam	Double Beam
2051	4	14' x 8'	170.00	180.00	2057	6	15' x 8'	230.00	245.00
2065	5	14' x 8'	200.00	210.00	2059	4	16' x 8'	180.00	190.00
2053	6	14' x 8'	225.00	240.00	2069	5	16' x 8'	210.00	220.00
2055	4	15' x 8'	175.00	185.00	2061	6	16' x 8'	235.00	250.00
2067	5	15' x 8'	205.00	215.00	2063	6	22' x 8'	250.00	265.00

Wagon dump irons not included in price of scales.

PRICES OF ALL WAGON AND DUMP SCALES ARE EXCLUSIVE OF TIMBER AND FOUNDATIONS.



Fairbanks Flour Scale

Beam mounted on Agate Bearings on top of the cap. Poise fastened by a self-locking latch instead of the ordinary set screw.

For weighing small packages an iron stand with wooden top is provided which may be removed from the platform when not needed.

One each 24, 24½, 25, 28, 49, 50, 98, 100, 110, 140, 196, 200, 220, 280 lbs. weights furnished.

No.	Beam	Platform	Price
1070	25 x ½ lbs.	16" x 25"	62.00

Fairbanks Flour Scale

This modification is of suitable size for weighing bags and barrels of flour. The machinery of the Scale is only in operation when the foot is placed on the lever provided for it. At other times the bearings are relieved from all wear.

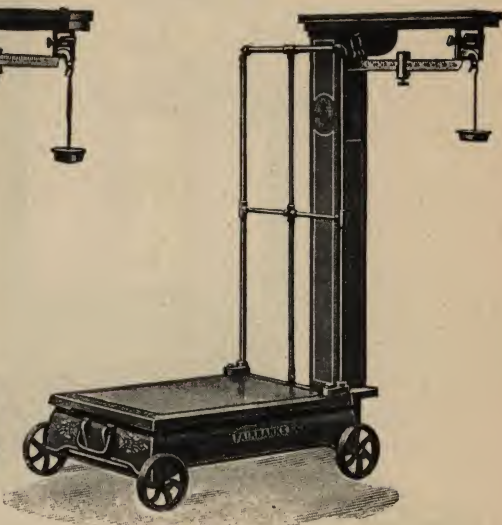
Scale is furnished with one each 49-lb., 98 lb., and 196-lb. weights for domestic use, and one each 140-lb. and 280-lb. for export sacks.

No.	Capacity, Lbs.	Platform	Price
1072	600	20" x 28"	60.00





With Wheels



With Bag Rack

Great Western Portable Platform Scales

Capacity, Lbs.	Platform, Inches	Without Wheels		With Wheels		With Wheels and Bag Rack	
		Number	Price	Number	Price	Number	Price
400	15 x 21	134	23.00	4	26.00	23	29.00
600	16 x 25	135	30.00	6	33.00	24	36.00
800	17 x 26	136	34.00	8	38.00	25	41.00
1000	17 x 26	137	39.00	10	43.00	26	46.00
1200	19 x 28	138	45.00	12	49.00	27	52.00
1500	21 x 28½	139	52.00	15	56.00	28	60.00
1600	22 x 30	140	60.00	16	65.00	-----	
2000	25 x 33	141	75.00	20	75.00	29	79.00
2500	26 x 34	142	85.00	22	85.00	30	89.00

Fairbanks Portable Platform Scales

Capacity, Lbs.	Platform, Inches	Without Wheels		With Wheels	
		Number	Price	Number	Price
2500	26 x 34	1100	80.00	1116	85.00
2000	25 x 32	1102	70.00	1118	75.00
1500	21 x 28	1104	52.00	1120	56.00
1200	20 x 28	1106	45.00	1122	49.00
1000	18 x 27	1108	39.00	1124	43.00
800	17 x 26	1110	34.00	1126	38.00
600	16 x 25	1112	30.00	1128	33.00
400	16 x 22	1114	23.00	1130	26.00

Fairbanks Portable Platform Scales

WITH BAG RACK

Capacity, Lbs.	Platform, Inches	Without Wheels		With Wheels	
		Number	Price	Number	Price
2500	26 x 34	1132	84.00	1148	89.00
2000	25 x 32	1134	74.00	1150	79.00
1500	21 x 28	1136	55.50	1152	59.50
1200	20 x 28	1138	48.50	1154	52.50
1000	18 x 27	1140	42.50	1156	46.50
800	17 x 26	1142	37.50	1158	41.50
600	16 x 25	1144	33.00	1160	36.00
400	16 x 22	1146	26.00	1162	29.00

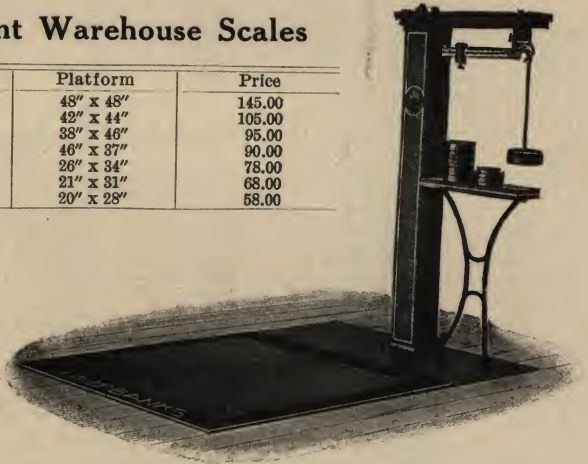


Fairbanks Grain Dealers Scales

Capacity, Lbs.	Platform, Inches	Without Wheels		With Wheels	
		Number	Price	Number	Price
1000	42 x 30	1300	68.00	1310	73.00
1200	42 x 30	1302	72.00	1312	77.00
1800	44 x 35	1304	87.00	1314	94.00
2000	44 x 35	1306	91.00	1316	98.00
2200	44 x 35	1308	93.00	1318	100.00

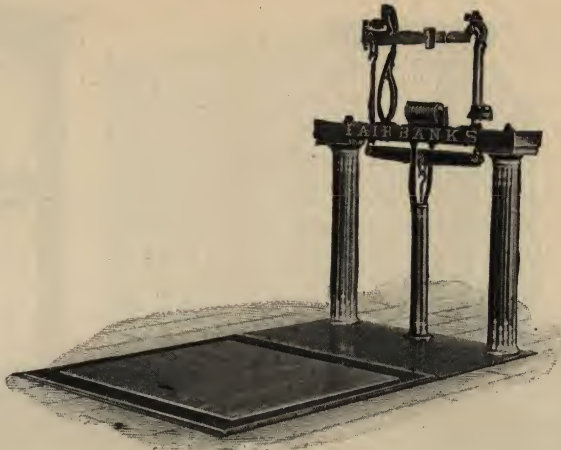
Fairbanks Dormant Warehouse Scales

Number	Capacity, Lbs.	Platform	Price
1086	5000	48" x 48"	145.00
1088	3500	42" x 44"	105.00
1019	3000	38" x 46"	95.00
1040	2500	46" x 37"	90.00
1042	2000	26" x 34"	78.00
1044	1500	21" x 31"	68.00
1017	1200	20" x 28"	58.00



Great Western Dormant Warehouse Scales

Number	Capacity, Lbs.	Platform	Price
88	2500	36" x 37"	92.00
89	3500	42" x 44"	105.00
90	5000	44" x 53"	150.00



With Short Iron Pillars

Great Western Dormant Warehouse Scales

Capacity, Lbs.	Platform	With Tall Iron Pillars		With Short Iron Pillars	
		Number	Double Beam	Number	Compound Beam
2500	36" x 37"	91	105.00	94	135.00
3500	42" x 44"	92	125.00	95	155.00
5000	44" x 53"	93	170.00	96	205.00

Fairbanks Dormant Warehouse Scales

Capacity, Pounds	Platform	With Tall Iron Pillars			With Short Iron Pillars		
		Number	Single Beam	Double Beam	Number	Single Beam	Double Beam
5000	43" x 48"	1046	170.00	180.00	1085	150.00	160.00
4000	43" x 48"	1069	155.00	165.00	1087	135.00	145.00
3500	42" x 44"	1048	125.00	133.00	1089	110.00	118.00
3500	42" x 44"	1052	133.00	141.00	1063	118.00	126.00
3000	38" x 46"	1067	115.00	123.00	1059	100.00	108.00
2500	46" x 37"	1050	105.00	113.00	1041	95.00	103.00
2000	38" x 46"	1065	100.00	108.00	1067	90.00	98.00
1500	43" x 33"	1063	95.00	103.00	1043	85.00	93.00
1200	43" x 33"	1061	91.00	99.00	1045	81.00	89.00



Grain Testers

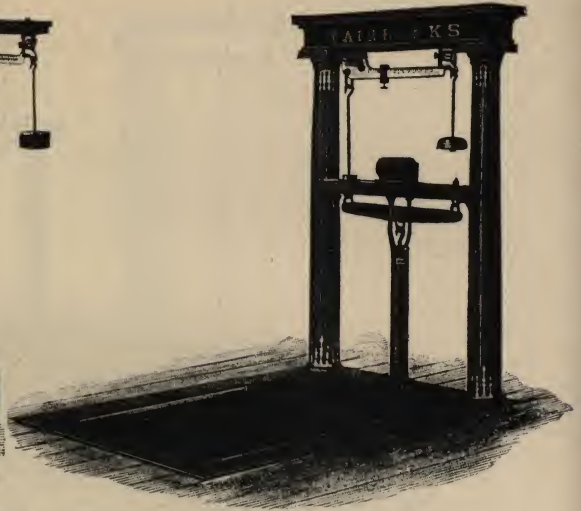
When the cup is empty the beam balances with the poise set at zero. Beam has three rows of graduations which indicate:

- 1st. The number of pounds per bushel of sample.
- 2nd. The exact weight of sample.
- 3rd. The percentage of loss in cleaning.

No.	Capacity	Price
3072.....	1 pint	12.50
3074.....	1 pint	13.00
3076.....	1 quart	14.00
3078.....	2 quarts	15.00



Single Pillar Portable



Double Pillar, Dormant

Great Western Portable Hopper Scales

SINGLE PILLAR

Number	Capacity		Platform	Opening for Hopper	Price
	Busbels	Pounds			
106	30	1800	33" x 43"	12" x 12"	84.00
107	40	2400	33" x 43"	12" x 12"	92.00

Fairbanks Portable Hopper Scales

SINGLE PILLAR

Number	Capacity		Platform	Opening for Hopper	Price
	Busbels	Pounds			
1600	30	1800	44" x 35"	15" x 15"	84.00
1602	40	2400	44" x 35"	15" x 15"	92.00

Great Western Dormant Hopper Scales

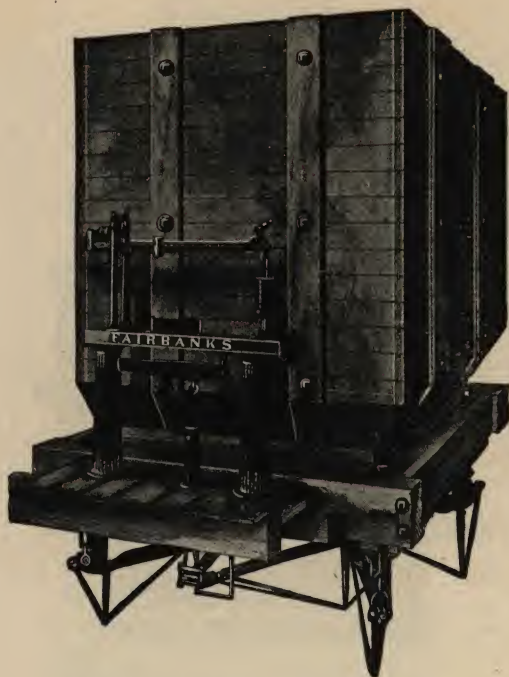
Capacity		Platform	Opening for Hopper	Single Wood Pillar		Two Iron Pillars	
Busbels	Pounds			Number	Price	Number	Price
4C	2400	36" x 37"	15½" x 15½"	108	92.00	113	105.00
60	3600	42" x 44"	18" x 18"	109	105.00	114	125.00
100	6000	44" x 53"	22" x 22"	110	140.00	115	160.00
125	7500	44" x 53"	22" x 22"	111	160.00	116	180.00
150	9000	44" x 53"	22" x 22"	112	175.00	117	195.00

The Great Western Dormant Hopper Scales with single wood pillar have single beam; those with two iron pillars have double beam.

Fairbanks Dormant Hopper Scales

Capacity		Platform	Opening for Hopper	Single Wood Pillar		Two Iron Pillars	
Busbels	Pounds			Number	Price	Number	Price
60	3600	42" x 44"	15" x 15"	1606	105.00	1608	125.00
100	6000	48" x 48"	22" x 22"	1610	140.00	1612	160.00
125	7500	48" x 48"	22" x 22"	1614	160.00	1616	180.00
150	9000	49" x 51"	36" x 36"	1618	175.00	1620	195.00

ALL PRICES OF HOPPER SCALES ARE EXCLUSIVE OF HOPPER



Trussed Lever Pattern—Wood Framing.

Great Western Hopper Scales

TRUSSED LEVER PATTERN

These scales are fitted with adjustable check rods and corner irons to keep scale level if building settles.

Prices do not include timber or hopper for the scale.

No.	Capacity, Bushels	Opening for Hopper	Price	No.	Capacity, Bushels	Opening for Hopper	Price
121	150	2'4" x 2'4"	195.00	128	800	5' 6" x 5' 6"	475.00
122	200	4'0" x 4'0"	225.00	129	900	6'10" x 6'10"	525.00
123	300	4'0" x 4'0"	285.00	130	1000	6'10" x 6'10"	600.00
124	400	4'6" x 4'6"	320.00	131	1200	6'10" x 6'10"	700.00
125	500	4'6" x 4'6"	350.00	132	1400	6'10" x 6'10"	800.00
126	600	5'6" x 5'6"	390.00	133	1600	6'10" x 6'10"	900.00
127	700	5'6" x 5'6"	430.00				

When desired, Tripods, Shelf and Goosenecks, can be substituted in place of pillars and cap, and 30.00 deducted from regular list.

Fairbanks Hopper Scales

These scales are fitted with adjustable check rods and corner irons to keep scale level if building settles.

Prices do not include timber or hopper for the scale.

No.	Capacity, Bushels	Opening for Hopper	Price	No.	Capacity, Bushels	Opening for Hopper	Price
1746	100	3' 0" x 3' 0"	155.00	1772	800	5' 6" x 5' 6"	475.00
1748	150	3' 0" x 3' 0"	205.00	1794	1000	6' 3" x 6' 3"	600.00
1750	200	4' 0" x 4' 0"	225.00	1796	1200	6' 3" x 6' 3"	700.00
1752	300	3' 8" x 3' 8"	285.00	1739	1400	6'10" x 6'10"	800.00
1762	400	4' 6" x 4' 6"	320.00	1741	1600	6'10" x 6'10"	900.00
1764	500	4' 6" x 4' 6"	350.00	1731	1800	10' 9" x 11' 9"	1100.00
1768	600	5'10" x 5'10"	390.00	1733	2000	10' 9" x 11' 9"	1200.00
1770	700	5' 6" x 5' 6"	430.00				

When desired, Tripods, Shelf and Goosenecks, can be substituted in place of pillars and cap, and 30.00 deducted from regular list.



Sonander Automatic Scales For Mills and Elevators

Size.	Hourly Capacity.	Weight.	Price.
B	150 bus.	195	350.00
C	300 bus.	290	400.00
CC	500 bus.	550	450.00
D	1000 bus.	670	500.00
E	1500 bus.	690	600.00
G	2000 bus.	920	700.00
H	2500 bus.	1035	800.00
J	3000 bus.	1400	1000.00

Larger sizes on application.

Capacities are based on standard weight wheat in good condition.

Prices include man to superintend installation.

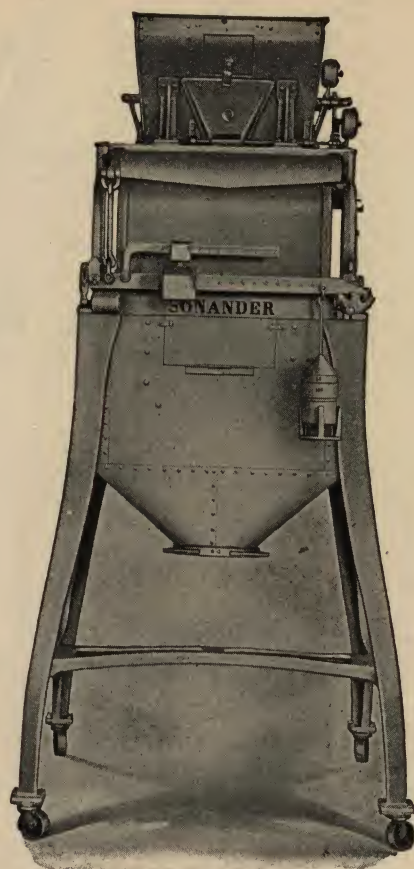
The SONANDER Automatic Scale is a Standard Scale to which have been added simple parts to secure automatic and continuous weighing. It is just like the scale you have always used, only it's automatic.

There is never any doubt or mystery. Greater accuracy, reduced labor, and recorded results are obtained.

It is guaranteed to handle a greater variety and condition of grain, clean or dirty, whole or ground, with greater ease and accuracy than any other automatic scale. Such a guarantee will be made to you.

The SONANDER is self-testing. No platform or other scale is required. It occupies less space than others.

The SONANDER Automatic Scale is built on simple, practical, common sense scale lines, so that the ordinary help about a mill or elevator can use it.



Sonander Automatic Sackers and Baggers

Size.	Hopper Capacity.	Speed, Sacks per minute.	Weight	Price.
B	7 lbs. to $\frac{1}{2}$ bu.	3 to 10	245	450.00
	3 lbs. to $\frac{1}{4}$ bu.	3 to 15		475.00
C	10 lbs. to 1 bu.	3 to 10	340	500.00
	5 lbs. to $\frac{1}{2}$ bu.	3 to 15		550.00
D	30 lbs. to 3 bu.	3 to 10	790	600.00
	10 lbs. to 3 bu.	3 to 15		650.00
E	40 lbs. to 4 bu.	3 to 10	820	700.00
	15 lbs. to 4 bu.	3 to 12		750.00
G	50 lbs. to 5 bu.	3 to 10	1050	800.00
	20 lbs. to 5 bu.	3 to 12		850.00
H	60 lbs. to 7 bu.	3 to 10	1150	900.00
	30 lbs. to 7 bu.	3 to 12		950.00

Prices include man to superintend installation.

Sizes "B" and "C" are Meal Sackers and provided with an agitator in feed hopper. Agitator for all other sizes is \$50.00 extra. The larger sizes are adapted to handle Meal, Feed and whole Grains of all kinds.

There is no other Automatic Scale like the SONANDER. As a net weight bagging scale it is perfect, and, if its maximum capacity can be taken care of, being double that of any other in the world, the user can make an extra profit. He can bag twice as much grain, feed and meal as with any other scale.

Study its wonderful range, shown above. This range of weights is obtained by simply moving the poise on the beam. The beam rises to balance at every automatic draft. Furnished to suspend beneath bin, or on portable stand.

We build gross weight SONANDERS also,



No. 0W to 4W



No. 21W to 24W



No. 71W to 73W

Warehouse Trucks

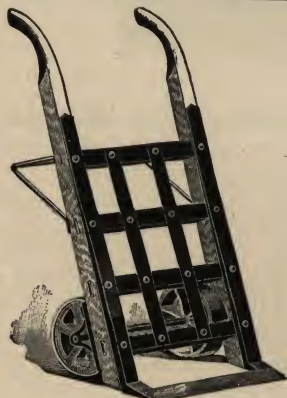
WESTERN PATTERN

No.	Rubbered Wheels	Iron Wheels	Description	Weight, Pounds	Length Handles	Diameter Wheels	Width
0W	12.50	6.00	Half ironed	32	42"	6"	18"
1W	15.00	7.00	Half ironed	43	48"	7 $\frac{1}{2}$ "	19"
2W	18.50	9.00	Half ironed	60	52"	8 $\frac{1}{2}$ "	20"
3W	24.00	13.00	Half ironed	77	56"	9 $\frac{1}{2}$ "	22"
4W	32.00	16.00	Half ironed	110	60"	10 $\frac{3}{4}$ "	24"
21W	16.00	8.00	Full ironed	50	48"	7 $\frac{1}{2}$ "	19"
22W	19.00	10.50	Full ironed	68	52"	8 $\frac{1}{2}$ "	20"
23W	28.00	15.00	Full ironed	87	56"	9 $\frac{1}{2}$ "	22"
24W	34.50	18.50	Full ironed	115	60"	10 $\frac{3}{4}$ "	24"

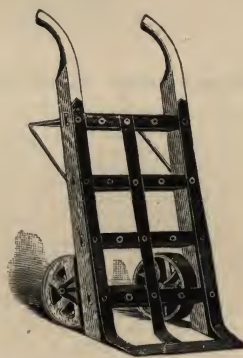
Barrel Trucks, Western Pattern

WITH BENT IRON CROSS BARS

No.	Rubbered Wheels	Iron Wheels	Description	Weight, Pounds	Length Handles	Diameter Wheels	Width
71W	17.00	9.00	Full ironed	50	48"	7 $\frac{1}{2}$ "	19"
72W	20.00	11.00	Full ironed	75	52"	8 $\frac{1}{2}$ "	20"
73W	28.50	16.00	Full ironed	90	56"	9 $\frac{1}{2}$ "	22"



No. 34W and 35W



No. 44W and 144W

Railroad and Packing House Trucks

WESTERN PATTERN, EXTRA HEAVY

No.	Rubbered Wheels	Iron Wheels	Description	Weight, Pounds	Length Handles	Diameter Wheels	Width
34W	36.00	20.00	Full ironed	130	60"	10 $\frac{3}{4}$ "	24"
35W	44.00	28.00	Full ironed	150	66"	12"	25"
44W	38.00	22.00	Full ironed	135	60"	10 $\frac{3}{4}$ "	24"
144W	42.00	24.00	Full ironed	150	60"	12"	24"

All Trucks on this page have steel noses, forged axles, turned bearings, and are firmly bolted together. Only highest grade rubbered wheels are used; rubbers cannot become detached.



Feed or Grain Truck



Minneapolis Bag Truck



No. 50 Bag Truck.

Feed or Grain Truck

Used in feed stores and any place where large bags are to be handled, and it is impractical to use a four wheeled truck.

Steel nose, axles turned and wheels bored. Width, 28", length, 76"; wheels 14" diameter; weight, 175 lbs.

Price----- 30.00

Minneapolis Bag Truck

This is a bag truck with very long nose, useful in handling large bulky sacks.

Length of handles, 42"; width at nose, 11½"; length of nose, 9"; width at upper cross bar, 17"; wheels, 6" diameter; weight, 30 lbs.

Price----- 8.00

No. 50 Bag Truck

The nose of this truck is stamped from a solid piece of steel, making the nose the strongest part of the truck.

Length, 42"; width at nose, 11½"; wheels 6" diameter; weight, 19 lbs.

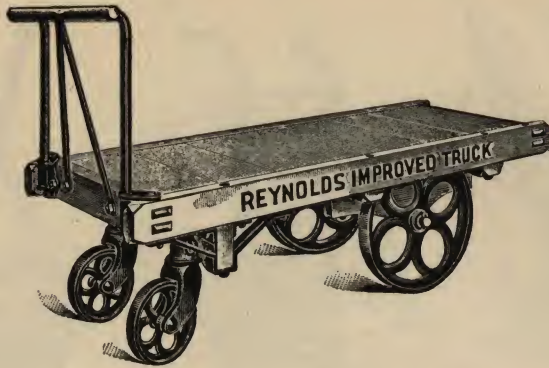
Price----- 4.50



Grain Wagon Trucks

Made of oak. Extra heavy and substantial.

Number	Price	Size of Platform	Diameter of Wheels	Diameter Axles	Height to Top of Platform	Weight
1	25.00	3' x 5'	11"	1½"	16"	240
2	27.00	3' x 5'	14"	1½"	18"	280



Reynolds Improved Mill, Factory and Warehouse Trucks

WITH BALL BEARING CASTERS

Number	Price Each	Size of Platform in Feet	Diameter of Wheels, Inches	Diameter of Casters, Inches	Height to Top of Platform, Inches	Capacity in lbs.	Weight, lbs.
0	24.00	2 x 3	12	6	14	1,200	125
1	25.00	2 x 4	12	6	14	1,200	152
3	26.10	2½ x 4	12	6	14	1,200	172
4	26.10	2 x 5	12	6	14	1,200	161
5	27.00	3 x 4	12	6	14	1,200	173
6	27.00	2½ x 5	12	6	14	1,200	175
8	29.25	3 x 5	12	6	14	1,200	192
9	30.00	2 x 4	18	9	19	3,000	217
11	31.50	2½ x 4	18	9	19	3,000	229
13	32.25	2½ x 4½	18	9	19	3,000	237
15	33.00	3 x 4	18	9	19	3,000	246
16	33.00	2½ x 5	18	9	19	3,000	243
18	32.25	2 x 5	18	9	19	3,000	230
19	33.00	2 x 6	18	9	19	3,000	240
20	34.50	2½ x 6	18	9	19	3,000	255
21	35.25	3 x 5	18	9	19	3,000	255
22	36.00	3 x 6	18	9	19	3,000	270
23	40.00	3 x 8	18	9	19	3,000	310

For Very Heavy Work

These trucks are also put up with several different styles of racks and boxes. If you need an easy running truck for some special work, send for our complete truck catalog.



U. S. Platform Trucks

Number	Price Each	Size of Platform	Height to Top of Platform, Inches	Diameter of Wheels, Inches	Weight Each, Pounds
80	13.00	2' x 3'	12	7½	90
82	14.00	2'4" x 3'4"	12	7½	115
83	15.00	2'6" x 3'6"	12	7½	125
84	17.00	3' x 4'	13	8½	150

Hoppers For Grain Trucks



Capacity, Bushels	Price	Capacity, Bushels	Price
30	30.00	400	158.00
40	40.00	500	188.00
60	50.00	600	210.00
100	60.00	700	228.00
125	70.00	800	250.00
150	86.00	900	280.00
200	106.00	1000	310.00
300	130.00		

Grain Hoppers on Trucks

Capacity, Bushels	Height Floor to Top Hopper	Size of Hopper	Price
30	3' 7"	3'9" x 5'2½"	50.00
40	4' 4"	3'9" x 5'2½"	60.00
60	5' 6"	3'9" x 5'2½"	75.00

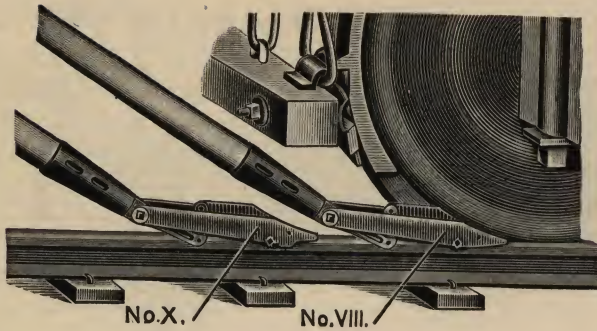


Tubular Steel Barrows

Number	Price	Size of Tray on Top	Gauge of Steel in Tray	Capacity, Cubic Feet	Weight
A1	15.00	33" x 33"	14	3	80
A02	11.00	29" x 32"	15	3	60
A2	12.00	29" x 32"	15	3	70
A13	13.00	29" x 32"	18	3	75
A14	15.00	29" x 32"	12	3	90
A15	15.00	29" x 36"	12	4½	86
A16	18.00	29" x 36"	12	4½	95
A17	20.00	29" x 36"	10	4½	110
A100	18.00	31" x 39"	14	5½	98
A18	20.00	33" x 42"	14	6	100
A18½	19.00	33" x 42"	16	6	90
A19	24.00	40" x 49"	16	8	100

The edges of trays are flanged and turned over a $\frac{1}{8}$ inch steel rod. This rod prevents the tray breaking at the edge, and makes it very much stronger. Trays are in one piece.


A18 is designed for coal. A18½ and A19 are designed for coke.



Atlas Car Mover

Price each..... 5.00
Extra Grips, each..... .25

The World moves itself, but the SAMSON moves the Cars.



GUARANTEED TO BE THE BEST CAR MOVER ON EARTH.

Samson Car Mover

Price each..... 5.00
Extra Grips, each..... .25



Sheldon Compound Lever Car Mover

Price each..... 5.00
Extra Grips, each..... .25



Grain Samplers

Any miller or grain dealer using this sampler guarantees himself against frauds, as "doctored" grain will not be brought to a market where there is danger of inspection or detection. One lot of poor grain detected more than pays for the sampler.

Size	Diameter, Inches	Length, Inches	Price Each
Wagon	1 1/4	36	6.00
Car	1 1/4	44	8.00
Car	1 1/4	44	9.00
Car	1 3/4	52	10.00

We also furnish these samplers of steel tubing with wood plungers.

1 1/4" diameter, 48" long..... 10.00
1 1/4" diameter, 52" long..... 12.00



Galvanized Iron Waste Cans

With self-closing spring cover. Recommended by leading insurance companies.

11 $\frac{1}{4}$ " x 15"-----per dozen, 18.00



Galvanized Iron Fire Pails

The round bottom prevents the pail from standing upright, and being used for other purposes.

10 quarts-----per dozen, 6.00
12 quarts-----per dozen, 6.75
14 quarts-----per dozen, 7.50



Flour Scoops of Heavy Tin

Number	Length, Inches	Each
2	6 $\frac{1}{2}$	.20
3	7 $\frac{1}{2}$	.25
4	9	.30
5	11	.40



Champion Flour Scoops

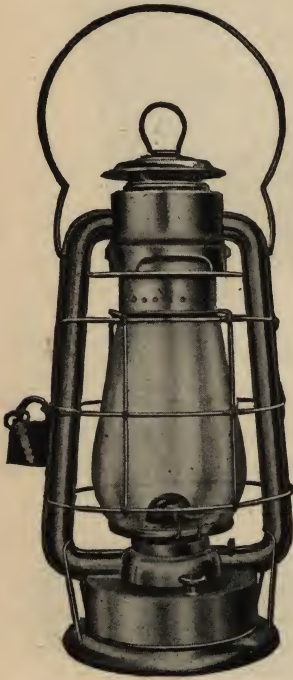
Size	Tin, Each	Steel, Each
8"	.60	.75
10"	.65	.85
12"	.75	1.00
14"	1.00	1.25



Hercules Steel Grain Scoops

This scoop is made of fine planished sheet steel, well put together, and will outwear several of the ordinary iron scoops.

Bushel Scoops -----each, 3.00
Half-bushel Scoops -----each, 2.50



Mill Tubular Lantern

A SAFETY LANTERN BURNING KEROSENE

Made especially for and under the supervision of the Millers National Insurance Company of Chicago for the use of their policy holders, and endorsed by the leading Millers Mutual Insurance Companies of the West. It is especially constructed to keep the dust out of the tubes, and every precaution has been taken to make it a safe lantern for use in flour mills.

Price each, without lock..... 1.50
Extra Globes, each..... .15



No. 39 Railroad Lanterns

FOR LARD OIL

Single Guard, each..... .85
Double Guard, each..... .85
Extra Globes, each..... .10



Moshier Bag Holder

This is the only bag holder adapted to all sizes of bags, from a 48-lb. flour sack to a 6-bushel gunny bag. Does not tear the bag. It is well made, malleable iron jaws, wrought iron pipe standards, steel spring, and weighs only 20 lbs. It pays for itself in a few days' time.

Price..... 5.00



Extra Miller's Brushes

ALL BRISTLES

No. 5.....each, 1.25 No. 6.....each, 1.50



Floor Brushes

ALL RUSSIA BRISTLES

No. 3, 12".....each, 2.50 No. 6, 14".....each, 4.75
No. 4, 13".....each, 3.00 No. 8, 16".....each, 5.50



Round Reel, Scalper, and Bran Duster Brushes

Reel and Scalper Brushes.....per foot, .50
Bran Duster Brushes.....Prices upon application.

Roll Brushes

For 12" roll.....each, .40 For 18" roll.....each, .65
For 14" roll.....each, .45 For 20" roll.....each, .70
For 15" roll.....each, .50 For 24" roll.....each, .80
For 16" roll.....each, .55 For 30" roll.....each, 1.00



Revolving Brush For Round Reels

With shaft through center.....per foot, 1.00
Without shaft through center.....per foot, .75
Journals one foot long and under, at same price per foot as brush.
Two adjustable bearings for brush journals with idler.....per set, 3.50

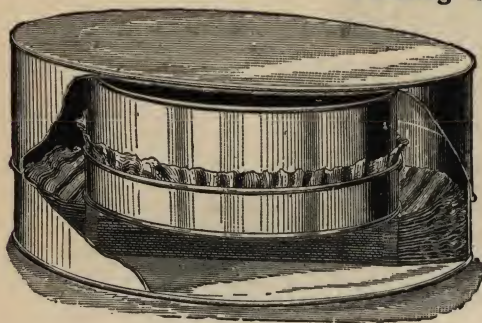


Rubber Mallets

For rapping spouts in a flour mill, and other purposes where non-marring hammer blows are required. Heads made of firm, tough rubber; handles of hickory.

Number	Diameter	Weight, Lbs.	Each
1	2 1/2"	1 1/2	1.25
2	2 3/4"	1 3/4	1.75
3	3"	2 1/2	2.25

Testing Sieves



Compact and simple, containing within a round box, 8 inches in diameter and $3\frac{1}{4}$ inches deep, the tapering sieve rings and nineteen changes, from No. 000 to No. 16 bolting cloth, which can be put on quickly and the experiment desired had, when they can all be put back and out of the way of insects.

Price of Sieve complete, with nineteen changes ----- 5.00
Any additional number of Extra or Double Extra Bolting Cloth, or Grit Gauges, 20c each.

Magnets

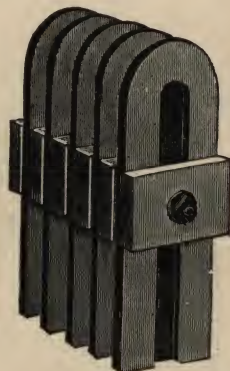
FOR REMOVING METALLIC PARTICLES FROM A STREAM OF GRAIN

Magnets should be used in gangs as shown above, the number used in a gang depending on the width of spout. At least two gangs should be placed in a spout, and, if the spout is very large or steep, three gangs should be used.

When in use, the "keepers" should be left off the Magnets.

These Magnets are ten inches long, and weigh about two pounds eight ounces each.

Price of each Magnet ----- 1.00



Gibbs Respirator



For use in Flour Mills, Grain Elevators, Cement Mills, Mines, Cotton Gins, Threshing, Etc. Will prevent the inhaling of dust.

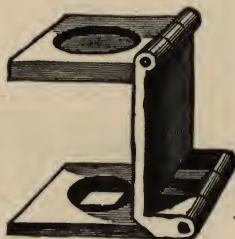
It is constructed of light metal, nickel-plated, and is bound with chamois to protect the face. An elastic band passing around the head holds the Respirator in place. The dust chamber opens by means of a screw cap so that fresh packing may be used as required, a supply of which is furnished with each Respirator. A special feature of this Respirator is its DRY packing, which is not apt to clog up with dust, and is therefore more cleanly.

Price, each ----- 1.00



Flour Triers

Ivory, without glass. 1.50
Steel flour triers. .50
Nickel plated triers. .25



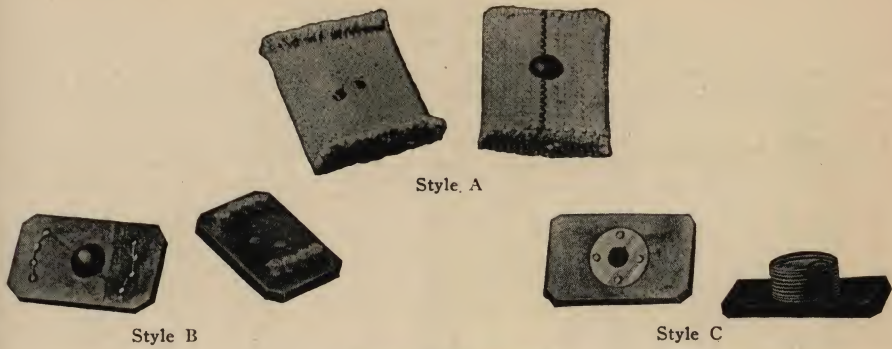
Bolting Cloth Glass

Brass, with $\frac{1}{4}$ inch opening ----- .75



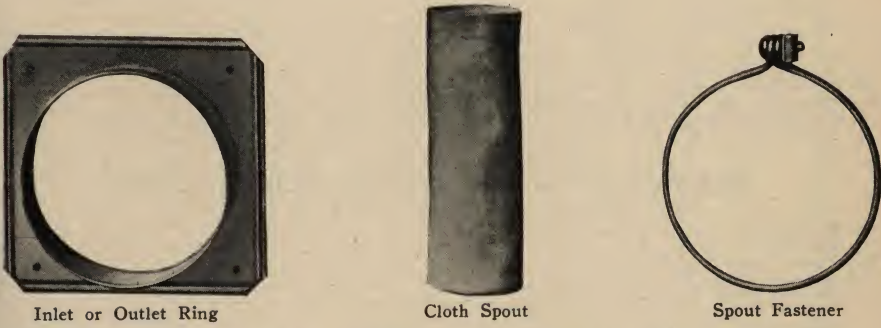
Magnifying Glass

Brass, with adjustable lenses. ----- 1.25



Cloth Cleaners

Style A, Cotton Fabric -----per dozen, 1.00
Style B, Bristle -----per dozen, 1.00
Style C, Spring -----per dozen, 1.25



Inlet or Outlet Rings For Sifters

4 inch opening-----each, .14 5 inch opening-----each, .16
Other sizes on application. State diameter of opening.

Cloth Spouts or Stockings For Sifters
MADE OF EXTRA HEAVY CANTON FLANNEL

Diameter	Length				
	12"	14"	16"	18"	20"
4"	.24	.28	.32	.36	.40
5"	.30	.34	.38	.42	.46
6"	.32	.36	.40	.44	.48
7"	.37	.41	.45	.49	.53
8"	.42	.46	.50	.54	.58

Special sizes made to order.

Cloth Spout or Stocking Fasteners

4 inch-----each, .08
5 inch-----each, .10
6 inch-----each, .10
7 inch-----each, .12
8 inch-----each, .14

Sifter Accessories

We are prepared to furnish a large variety of sundries used in connection with sifters, such as wire cloth, tin and steel for bottoms, tape for tacking cloth to sieves, canton flannel for lining, felt for joints, etc., etc. Prices on application.

Silk Bolting Cloth

LIST PRICES, PER YARD 40 INCHES WIDE

Subject to Discount

Number	Standard	Extra Heavy X	Double Extra XX	Triple Extra XXX
0000	1.60		2.00	
000	1.65		2.05	
00	1.75		2.10	
0	1.80		2.15	
1	1.85		2.25	
2	1.90		2.30	
3	2.05		2.45	
4	2.10		2.55	
5	2.15		2.65	
6	2.20		2.70	2.80
7	2.30	2.55	2.80	2.90
8	2.40	2.65	2.90	3.05
9	2.60	2.85	3.10	3.25
10	2.80	3.10	3.35	3.50
11	3.10	3.40	3.70	3.80
12	3.40	3.75	4.10	4.20
13	3.75	4.10	4.55	4.65
14	3.90	4.25	4.70	4.80
15	4.15	4.65	5.00	5.15
16	4.70	5.15	5.60	5.80
17	5.25	5.75	6.25	6.50
18	6.10	6.60	7.10	8.00
19	7.50	8.00	8.50	
20	8.50	9.25	10.00	
21	9.20			
25	10.00			

Standard Gritz Gauze, Nos. 14 to 86 inclusive, per yard..... 3.00

XXX Gritz Gauze, Nos. 16 to 80 inclusive, per yard..... 4.00

We have equipped our Bolting Cloth Department with the latest and most improved machines, and will guarantee our cloths to be perfectly made. Send for book of diagrams for ordering.

Net Prices For Making Up Bolting Cloths

PER LINEAL FOOT, LENGTH OF REEL OR SIEVE

For Sieve Bolters	.10
For Purifiers	.20
For Round Reels	.25
For Hexagon Reels	.30
For Octagon Reels	.35

Meshes per Lineal Inch of Silk Bolting Cloth

Comparative Bolting Capacity

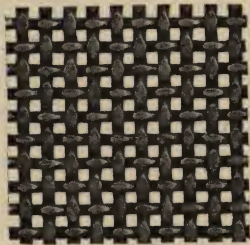
No. of Cloth	Standard, Extra, Double Extra	Triple Extra	No. of Gritz Gauze	Standard, Triple Extra	No. Bolting Cloth	No. Gritz Gauze	No. Wire Cloth
0000	18		14	134	0000	16	18
000	23		16	154	000	22	22
00	29		18	174	00	28	28
0	38		20	19	0	40	30
1	48		22	21	1	46	36
2	54		24	23	2	50	45
3	58		26	25	3	54	50
4	62		28	27	4	56	55
5	66		30	29	5	64	60
6	74		32	31	6	72	64
7	82	74	34	33	7	80	70
8	86	82	36	35	8	86	80
9	97	86	38	37	9		100
10	109	97	40	39	10		110
11	116	109	42	404	11		125
12	125	116	44	424	12		130
13	129	125	46	444	13		150
14	139	129	48	464	14		
15	150	139	50	484			
16	157	150	52	504			
17	163	157	54	524			
18	166	163	56	544			
19	169		58	564			
20	173		60	58			
21	178		62	60			
25	200		64	62			
			66	64			
			68	66			
			70	68			
			72	72			

Wire Bolting Cloth

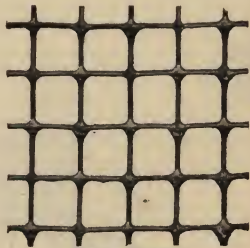
Plated Steel Wire Cloth for Scalpers, Screens, Etc.			Extra Heavy, Steel Tempered Bran Duster Wire Cloth		Special Light Tinned Wire Cloth	
No. Mesh	Price per Sq. Foot	Stock Widths	Width in Stock, 18 in.		No. Mesh	Price per Sq. Foot
			No. Mesh	Price per Sq. Foot		
2	.15	36"	30	.47	16	.25
3	.15		35	.47	18	.25
4	.15		40	.48	20	.30
5	.15		45	.58	22	.30
6	.15		50	.65	24	.35
8	.15		55	.80	26	.35
9	.15		60	.85	28	.35
10	.18	24" & 36"	64	.85	30	.40
			70	.90	32	.40
			74	1.00	34	.45
12	.18	24" & 32"	80	1.20	36	.45
14	.18		90	1.45	38	.50
16	.18		Brass Wire Cloth		40	.50
18	.18				42	.55
			Width in Stock, 36 in.		44	.55
					46	.65
20	.25	24" 28" & 32"	No. Mesh	Price per Sq. Foot	48	.65
22	.28				50	.70
24	.28		50	.65	52	.70
26	.28		60	.70	54	.75
28	.28		70	.80	56	.75
30	.28		80	1.00	58	.80
			90	1.25	60	.80
32	.28	32"	100	1.45	62	.85
34	.33		110	1.60	64	.85
36	.40		120	1.85	66	.90
40	.45		130	2.35	68	.90
45	.53		140	2.55	70	.90
50	.62		150	3.00	72	1.00
60	1.00				74	1.00
					76	1.00
					78	1.10
					80	1.10
					82	1.25
					84	1.25
					86	1.25
					88	1.50
					90	1.50
					92	1.75
					94	1.75

Prices For Making up Wire Cloths

Per running foot, ordinary six sided reel..... .60
Per running foot, round reels30



Cockrell Case



Sieve Bottom

Cockrell Scouring Cases

Cylindrical Cases, per square foot..... 1.25
Conical Cases, per square foot..... 1.50

Wire Cloth For Sieve Bottoms

No. 4 Mesh No. 23 Galvanized Wire Cloth, per square foot..... .06

Bolting Chest Fittings

Wood Reel Shafts, octagon, without gudgeons.....	per foot, .50
Wood Reel Ribs, planed true, circled one edge.....	each, .70
Reel Arms, hard wood, turned, 32-inch reel.....	each, .15

Gudgeons. See list of gudgeons, page 409.

Round Reel Fittings

We furnish all material necessary to make Round Reels, or for changing Hexagon to Round Reels. Estimates furnished for material necessary for changing any size Hexagon Reels to Round Reels.

Wood Conveyor, Complete

In box with plate and coupling gudgeons fitted on, and with hard-wood flights.

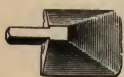
PRICE LIST

Number	1	2	3
Diameter wood shaft.....	3 1/4"	3 3/8"	5"
Complete, with full box.....per foot	1.60	1.75	2.00
Complete, in box without cover.....per foot	1.40	1.50	1.75

Wood Conveyor Fittings

Diameter wood shaft.....	3 1/4"	3 3/8"	5"
Shaft, bored only.....per foot	.26	.28	.32
Box only, with cover.....per foot	1.00	1.10	1.25
Box only, without cover.....per foot	.90	1.00	1.15
Iron babbitted end bearings, extra.....each	1.80	2.00	3.25

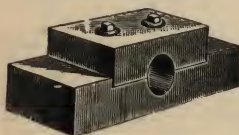
Hard Wood Conveyor Flights



Size Blade	Size Blade	Size Blade
1 1/4" x 1 1/4"	2" x 2"	2 1/4" x 2 1/4"
1 1/2" x 1 1/2"	2 1/4" x 2 1/4"	2 1/2" x 2"
1 3/4" x 1 3/4"		


Price, all sizes.....per 100, 1.00

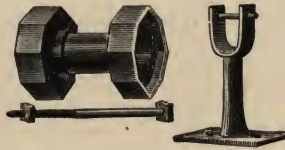
Hard Wood Journal Boxes



Size Shaft	Price	Size Shaft	Price
1 1/8"	.90	2 1/4"	1.20
1 1/4"	.95	2 1/2"	1.30
1 1/2"	1.00	2 3/4"	1.50
1 3/4"	1.10		

Flanged or Plate Gudgeons

	Size of Flange	Diameter of Journal	Length of Journal	Price
	$5\frac{1}{2}"$ $5"$ $4\frac{3}{4}"$ $4"$ $3\frac{1}{2}"$ $3\frac{1}{4}"$ $3"$	$1\frac{1}{8}"$ $1\frac{1}{4}"$ $1\frac{1}{2}"$ $1\frac{3}{4}"$ $1\frac{7}{8}"$ $1\frac{1}{2}"$ $1\frac{1}{8}"$	2" to 6"	$\left\{ \begin{array}{l} 2.50 \\ 2.30 \\ 2.10 \\ 2.00 \\ 1.90 \\ 1.85 \\ 1.80 \end{array} \right.$

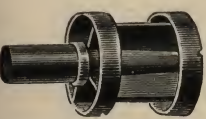


Flanged or Plate Coupling and Stand

$5\frac{1}{2}"$ Flange.....per set, 2.50	$4"$ Flange.....per set, 2.20
$5"$ Flange.....per set, 2.40	$3\frac{1}{4}"$ Flange.....per set, 2.10
$4\frac{3}{4}"$ Flange.....per set, 2.30	$3"$ Flange.....per set, 2.00

The above are standard sizes. Gudgeons of other dimensions made to order.

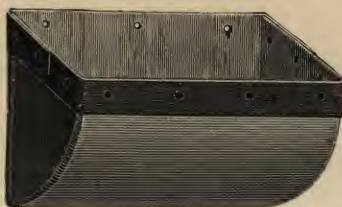
Wing Gudgeons

	Outside Diameter of Band	Diameter of Journal	Length of Journal	Price
	$7"$ $5"$ $4\frac{1}{2}"$ $4"$	$1\frac{1}{8}"$ $1\frac{1}{4}"$ $1\frac{1}{2}"$ $1\frac{3}{4}"$ $1\frac{7}{8}"$	2" to 6"	$\left\{ \begin{array}{l} 3.50 \\ 3.25 \\ 3.00 \\ 2.50 \end{array} \right.$



Wing Coupling and Stand

Outside diameter of band, $5"$	per set, 5.00
Outside diameter of band, $4\frac{1}{2}"$	per set, 4.00
Outside diameter of band, $4"$	per set, 3.00
Outside diameter of band, $3\frac{1}{2}"$	per set, 2.50



Tin Mill Buckets

Width on Belt, Inches		Projection, Inches	Price	Width on Belt, Inches		Projection, Inches	Price
2	x	2	.08	4	x	3½	.13
2½	x	2½	.08	4½	x	3½	.14
3	x	3	.09	5	x	4	.16
3½	x	3	.10	5½	x	4	.17
4	x	3	.12	6	x	4	.18

Steel Grain Buckets

Width on Belt, Inches		Projection, Inches	Price		Width on Belt, Inches		Projection, Inches	Price	
			Plain	Galv.				Plain	Galv.
5	x	4	.16	.27	9	x	5	.28	.45
5½	x	4	.17	.28	10	x	5½	.35	.55
6	x	4	.18	.30	11	x	6	.40	.60
7	x	4½	.22	.35	12	x	6	.44	.65
8	x	5	.25	.40	14	x	6	.50	.70

Steel Corn Buckets

Width on Belt, Inches		Projection, Inches	Price	Width on Belt, Inches		Projection, Inches	Price
9	x	6	.40	14	x	7	.65
10	x	6	.44	15	x	7	.70
11	x	7	.56	16	x	7	.76
12	x	7	.59	18	x	7	.82
13	x	7	.62	19	x	7	.87



Steel Elevator Buckets With Brace

These buckets are made with bodies of either No. 26 or No. 24 smooth cold rolled steel, furnished with heavy bands, and either malleable "I" brace or wrought iron "Z" brace, as desired.

Width on Belt, Inches		Projection, Inches	Depth, Inches	No. 26 Steel with Malleable "I" Brace	No. 26 Steel with "Z" Brace	No. 24 Steel with "Z" or Malleable "I" Brace
16	x	6	6	.66	.60	.73
18	x	6	6	.73	.70	.85
20	x	6	6	.80	.75	.95
16	x	7	7			.88
18	x	7	7			.97
20	x	7	7			1.05
16	x	7	7½			.97
18	x	7	7½			1.03
20	x	7	7½			1.10
16	x	7½	7½			1.00
18	x	7½	7½			1.10
20	x	7½	7½			1.20
16	x	7½	8			1.05
18	x	7½	8			1.15
20	x	7½	8			1.27
16	x	8	8			1.05
18	x	8	8			1.23
20	x	8	8			1.32



Buffalo Elevator Buckets

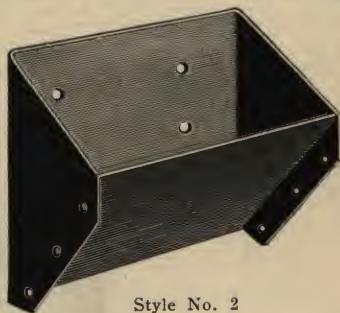
These buckets have a concave back to conform to the curve of the head and boot pulleys.

They are made of Nos. 24 or 26 smooth cold rolled steel, and reinforced with bands of No. 12 steel. We furnish these buckets with either malleable "I" brace or wrought iron "Z" brace, as desired. This type of bucket is used almost exclusively in large terminal elevators.

Width on Belt, Inches		Projection, Inches	Depth, Inches	No. 26 Steel with Malleable "I" Brace	No. 26 Steel with "Z" Brace	No. 24 Steel with "Z" or Malleable "I" Brace
16	x	6	6	.60	.54	.66
18	x	6	6	.66	.62	.78
20	x	6	6	.72	.68	.86
12	x	7	7 (no brace)	-----	-----	.60
14	x	7	7 (no brace)	-----	-----	.68
16	x	7	7	-----	-----	.80
18	x	7	7	-----	-----	.88
20	x	7	7	-----	-----	.94
12	x	7	7 1/2 (no brace)	-----	-----	.64
14	x	7	7 1/2 (no brace)	-----	-----	.72
16	x	7	7 1/2	-----	-----	.86
18	x	7	7 1/2	-----	-----	.94
20	x	7	7 1/2	-----	-----	1.00
14	x	7 1/2	7 1/2 (no brace)	-----	-----	.78
16	x	7 1/2	7 1/2	-----	-----	.92
18	x	7 1/2	7 1/2	-----	-----	1.00
20	x	7 1/2	7 1/2	-----	-----	1.10
14	x	7 1/2	8 (no brace)	-----	-----	.82
16	x	7 1/2	8	-----	-----	.96
18	x	7 1/2	8	-----	-----	1.04
20	x	7 1/2	8	-----	-----	1.16
14	x	8	8 (no brace)	-----	-----	.88
16	x	8	8	-----	-----	1.04
18	x	8	8	-----	-----	1.12
20	x	8	8	-----	-----	1.20



Style No. 1



Style No. 2

Extra Heavy Steel Buckets

FOR COAL, STONE, CEMENT, ETC.

Size of Bucket			Used With Belt or Chain		Price Each					
Across Belt	Projection	With Belt	Pitch of Chain, Inches		18 Gauge	16 Gauge	14 Gauge	12 Gauge	10 Gauge	8 Gauge
8	4 1/2	7 1/2	4	-----	.30	.35	.45	.55	-----	-----
9	5	7 1/2	4	-----	.35	.40	.50	.70	-----	-----
10	5 1/2	9	4 1/2	-----	-----	.50	.65	.95	1.20	-----
12	6	11 1/2	4	6	-----	.80	.95	1.40	1.80	-----
14	7	11 1/2	4	6	-----	-----	1.05	1.55	1.95	2.60
16	8	11 1/2	4	6	-----	-----	1.20	1.85	2.25	3.00
18	9	11 1/2	4	6	-----	-----	-----	2.10	2.70	3.60
24	10	17 1/2	6	9	-----	-----	-----	-----	4.50	6.00
24	12	17 1/2	6	9	-----	-----	-----	-----	5.15	6.85
30	12	17 1/2	6	9	-----	-----	-----	-----	6.00	8.00

Prices of other special shapes on application.



Salem Elevator Buckets

Size of Buckets		Regular Gauge for Mill and Elevator Work					Heavy Gauge for Corn and Cobs and Heavy Material		Extra Heavy Gauge for Cement, Coal, Ores, Stone, Etc.		
Width on Belt	Projection	24	23	22	21	19	18	16	14	12	10
2	x 2	.10					.15				
2½	x 2½	.10					.20				
3	x 2½	.10					.20				
3½	x 2½	.10					.23				
3	x 3		.10					.29			
3½	x 3		.10					.31			
4	x 3		.15					.35			
4½	x 3		.15					.39			
4	x 3½			.15				.38	.41		
4½	x 3½			.15				.40	.43		
5	x 3½			.19				.44	.47		
5½	x 4			.19				.48	.51	.71	
6	x 4				.22			.49	.53	.73	
7	x 4½				.22			.50	.54	.75	
8	x 5				.30			.56	.60	.83	1.03
9	x 5					.38		.63	.68	.93	1.15
10	x 5½					.40		.75	.81	1.12	1.38
10	x 6					.48		.86	.93	1.28	1.58
11	x 6						.55	.91	.98	1.36	1.67
12	x 6						.63	.98	1.05	1.45	1.79
14	x 6						.70	1.03	1.11	1.53	1.89
16	x 6						.80	1.05	1.12	1.56	1.93
18	x 6						.90	1.10	1.19	1.64	2.02
20	x 6						1.00	1.15	1.24	1.71	2.15
10	x 7						1.10	1.20	1.28	1.79	2.21
11	x 7						.75	1.16	1.25	1.73	2.13
12	x 7						.85	1.23	1.32	1.83	2.25
13	x 7						.90	1.28	1.38	1.90	2.35
14	x 7						1.13	1.29	1.39	1.91	2.37
15	x 7						.95	1.30	1.40	1.94	2.39
16	x 7						1.22	1.33	1.43	1.97	2.44
18	x 7						1.28	1.35	1.46	2.01	2.48
20	x 7						1.38	1.40	1.51	2.09	2.58
16	x 8						1.58	1.45	1.57	2.16	2.67
18	x 8						1.40	1.60	1.73	2.38	2.94
20	x 8						1.50	1.65	1.78	2.46	3.03
22	x 8						1.70	1.70	1.84	2.53	3.13
24	x 8						1.95	1.80	1.94	2.68	3.31
							2.15	1.90	2.05	2.83	3.50

For galvanizing add 65 per cent.

Prices on other gauges and sizes quoted upon application.



Avery Elevator Buckets

Width on Belt	Projection	Plain	Galvanized	Gage of Steel	Width on Belt	Projection	Plain	Galvanized	Gage of Steel
2	x 2	.15	.18	23	8	x 5	.59	.78	19
2½	x 2½	.16	.20	23	9	x 5½	.75	1.03	18
3	x 3	.19	.23	23	10	x 5½	.88	1.18	18
3½	x 3	.23	.27	23	11	x 6	1.00	1.35	18
4	x 3	.25	.30	22	12	x 6½	1.14	1.54	18
4½	x 3½	.26	.33	20	14	x 6½	1.28	1.82	16
5	x 4	.28	.36	20	16	x 6½	1.70	2.37	16
5½	x 4	.32	.41	20	18	x 7	2.15	2.99	15
6	x 4	.38	.48	20	20	x 7	2.55	3.55	15
7	x 4½	.50	.65	19					

Over 8x5 are corrugated buckets.



Malleable Iron Buckets

Styles "A" and "AA" are adapted to the handling of ear corn, cement, coal, phosphates, chemicals, pulp, etc. Style "B" is used for handling ores, stone, etc., in inclined elevators. Style "C" is especially adapted for sugar, clay and sticky materials. We make no charge for punching.

STYLE A

Length in inches	Width or Projection in inches	Depth in inches	Approximate capacity in cubic inches	Approximate capacity in quarts	Price
4	22	3	16	.27	.21
5	32	3	36	.62	.34
6	4	4	55	.95	.48
7	4	5	85	1.47	.62
8	5	5	115	1.99	.78
10	6	6	204	3.53	1.20
11	6	6	223	3.86	1.30
12	6	6	246	4.25	1.40
12	7	7	332	5.74	1.85
14	7	7	391	6.77	2.10
15	7	7	425	7.35	2.20
16	7	7	467	8.08	2.30
14	8	8	509	8.81	2.75
16	8	8	593	10.26	3.10
18	8	8	668	11.56	3.50
18	10	10	1053	18.23	4.75

STYLE B

Length in inches	Width or Projection in inches	Depth in inches	Approximate capacity in cubic inches	Approximate capacity in quarts	Price
4	1	2	6	.10	.12
7	3	5	55	.95	.48
8	3	5	65	1.12	.50
10	4	5	107	1.85	.90
12	5	7	233	4.03	1.44
16	6	9	412	7.13	2.30

STYLE C

Length in inches	Width or Projection in inches	Depth in inches	Approximate capacity in cubic inches	Approximate capacity in quarts	Price
8	4	4	50	1.	.63
10	5	4	80	1.5	.95
12	5	4	100	2.	1.05
16	7	5	250	6.5	2.20

STYLE AA

Reinforced front edge with body of Bucket $\frac{1}{8}$ inch thick

Length in inches	Width or Projection in inches	Depth in inches	Approximate capacity in cubic inches	Approximate capacity in quarts	Price
6	4	4	55	.95	.60
8	5	5	115	1.99	1.00
10	6	6	204	3.53	1.45
11	6	6	223	3.86	1.55
12	6	6	246	4.25	1.70
12	7	7	332	5.74	2.20
14	7	7	391	6.77	2.45
15	7	7	425	7.35	2.60
16	7	7	467	8.08	2.80

Prices of other sizes and styles given on application.



Eclipse Elevator Bolts

PRICE PER BOX OF 100

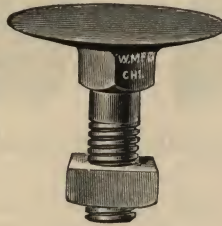
$\frac{1}{4} \times \frac{1}{2}$	1.00
$\frac{1}{4} \times \frac{3}{4}$	1.00
$\frac{1}{4} \times 1$	1.00
$\frac{1}{4} \times \frac{3}{2}$	1.15



Excelsior Flat Head Elevator Bolts

PRICE PER BOX OF 100

$\frac{1}{4} \times \frac{1}{2}$	2.20
$\frac{1}{4} \times \frac{3}{4}$	2.20
$\frac{1}{4} \times 1$	2.30



$\frac{1}{4} \times 1$	2.30
$\frac{1}{4} \times 1 \frac{1}{4}$	2.40
$\frac{1}{4} \times 1 \frac{1}{2}$	2.50



Square Head



Button Head



Oval Head

Bolts For Chain Attachments

PRICE PER BOX OF 100

SQUARE HEAD

$\frac{1}{4} \times \frac{1}{2}$	1.70
$\frac{1}{4} \times 1$	1.70
$\frac{1}{2} \times \frac{1}{2}$	2.00
$\frac{1}{2} \times 1$	2.00
$\frac{3}{4} \times \frac{1}{2}$	2.40
$\frac{3}{4} \times 1$	2.40

BUTTON HEAD

$\frac{1}{4} \times \frac{1}{2}$	1.50
$\frac{1}{4} \times 1$	1.50

OVAL HEAD

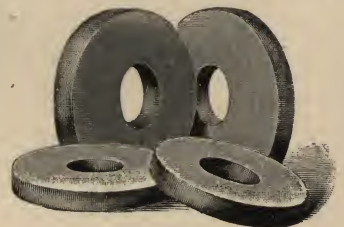
$\frac{1}{2} \times \frac{1}{2}$	2.65
$\frac{1}{2} \times 1$	2.65
$\frac{3}{4} \times \frac{1}{2}$	2.65
$\frac{3}{4} \times 1$	2.65



T Wrench

Malleable T Wrench

For fastening elevator buckets to belts, length 11"..... .50



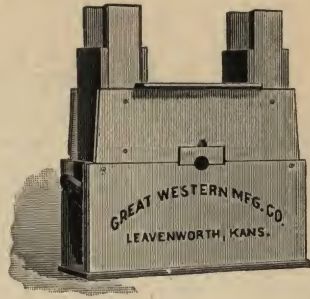
Leather Washers

Leather Washers

For $\frac{1}{4}$ " bolts, per 100..... .25



Elevator Head

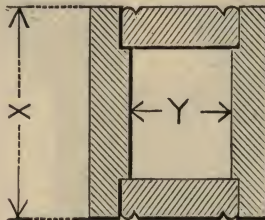


Elevator Boot

Elevator Heads, Boots and Legging

Size of Cups		Pro-jection	Width of Belt Cotton	Size of both Head and Boot Pulleys	Revolutions per Minute	Belt Speed per Minute in Feet	Capacity per Hour, Bushels, Cups 16 ins. apart	Size of Leg-ging		Price, Including Both Legs	Price Without Pulley	
Width								Front and Back	Filling		Head	Boot
2½	x	2½	3	16 x 3½	52	216	25	5½	8½	.42	5.50	5.50
3	x	3	3½	16 x 4	52	216	50	4½	4½	.44	5.75	5.75
3½	x	3	4	16 x 4½	52	216	62	6½	4½	.46	6.00	6.00
4	x	3	4½	16 x 5	52	216	66	7½	4½	.52	6.25	6.25
4½	x	3½	5	16 x 5½	52	216	100	7½	5	.54	6.50	6.50
5	x	4	5½	16 x 6	52	216	150	8½	5½	.56	6.75	6.75
5½	x	4	6	16 x 6½	52	216	169	8½	5½	.60	7.00	7.00
6	x	4	6½	18 x 4	47	221	51	6½	4½	.44	6.00	6.00
6½	x	3	3½	18 x 4½	47	221	63	6½	4½	.46	6.25	6.25
7	x	3	4	18 x 5	47	221	68	7½	4½	.52	6.50	6.50
7½	x	3½	5	18 x 5½	47	221	102	7½	5	.54	6.75	6.75
8	x	4	5½	18 x 6	47	221	153	8½	5½	.56	7.00	7.00
8½	x	4	6	18 x 6½	47	221	173	8½	5½	.60	7.25	7.25
9	x	4	7	18 x 7½	47	221	178	9½	5½	.64	7.50	7.50
9½	x	3	3½	20 x 4	44	230	54	6½	4½	.44	6.25	6.25
10	x	3	4	20 x 4½	44	230	68	6½	4½	.46	6.50	6.50
10½	x	3	4½	20 x 5	44	230	71	7½	4½	.52	6.75	6.75
11	x	3½	5	20 x 5½	44	230	107	7½	5	.54	7.00	7.00
11½	x	4	5½	20 x 6	44	230	160	8½	5½	.56	7.25	7.25
12	x	4	6	20 x 6½	44	230	177	8½	5½	.60	7.50	7.50
12½	x	4	7	20 x 7½	44	230	185	9½	5½	.64	7.75	7.75
13	x	4½	8	20 x 8½	44	230	284	10½	6	.70	8.00	8.00
13½	x	3	4	24 x 4½	42	263	77	6½	4½	.46	7.00	7.00
14	x	3	4½	24 x 5	42	263	82	7½	4½	.52	7.25	7.25
14½	x	3½	5	24 x 5½	42	263	123	7½	5	.54	7.50	7.50
15	x	4	5½	24 x 6	42	263	185	8½	5½	.56	7.75	7.75
15½	x	4	6	24 x 6½	42	263	205	8½	5½	.60	8.00	8.00
16	x	4	7	24 x 7½	42	263	215	9½	5½	.64	8.25	8.25
16½	x	4½	8	24 x 8½	42	263	328	10½	6	.70	8.50	8.50
17	x	5	9	24 x 9½	42	263	410	11½	6½	.80	8.75	8.75
17½	x	5	10	24 x 10½	42	263	492	12½	6½	.95	9.00	9.00
18	x	6	10	24 x 10½	42	263	575	12½	7½	1.00	9.00	9.00

For prices of larger sizes of Heads and Boots, see following page.



Spouting

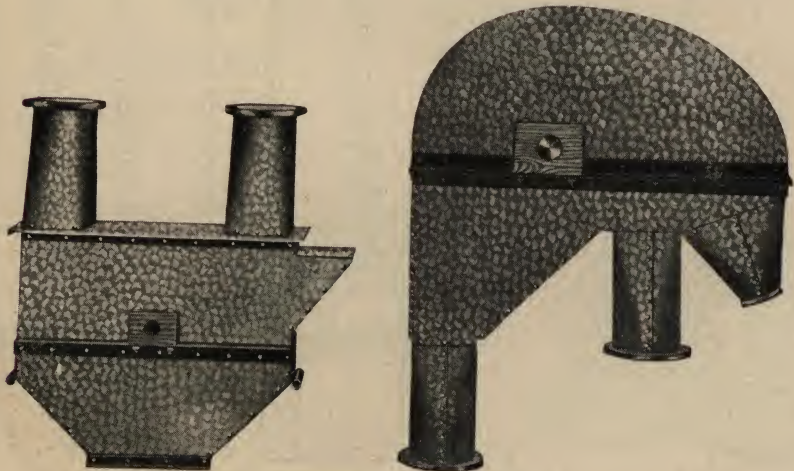
PRICE LIST PER LINEAL FOOT—FOUR SIDES

Number	A	B	C	D	E
Dimensions at Y	2½"	2½"	2½"	3"	3½"
Dimensions at X	5"	5½"	6"	6½"	7"
Price per foot	.18	.20	.22	.24	.26

Elevator Heads and Legging

Size of Cups			Width of Belt	Size of Head Pulleys	Revolutions per Minute	Belt Speed per Minute in Feet	Capacity per Hour, Cups 16 Ins. apart, Bushels	Size of Legging		Price of Head Without Pulley
Width	Pro- jection							Front and Back	Filling	
10	x	5½	11	30 x 12	38	298	840	15½	7½	16.00
10	x	6	11	30 x 12	38	298	840	15½	8	16.00
11	x	6	12	30 x 13	38	298	975	16½	8	18.00
12	x	6	13	30 x 14	38	298	1115	19½	9	20.00
11	x	6	12	36 x 13	36	339	1110	16½	8	24.25
12	x	6	13	36 x 14	36	339	1270	19½	9	26.25
14	x	6	15	36 x 16	36	339	1430	21½	9	27.50
12	x	6	13	40 x 14	34	356	1335	19½	9	27.50
14	x	6	15	40 x 16	34	356	1500	21½	9	28.75
16	x	6	18	40 x 19	34	356	1670	23½	9	30.50
12	x	6	13	44 x 14	34	391	1465	19½	9	31.00
14	x	6	15	44 x 16	34	391	1650	21½	9	32.00
16	x	6	18	44 x 19	34	391	1830	23½	9	33.00
12	x	6	13	48 x 14	32	402	1505	19½	9	41.00
14	x	6	15	48 x 16	32	402	1690	21½	9	43.00
16	x	6	18	48 x 19	32	402	1980	23½	9	45.00
12	x	6	13	54 x 14	31	438	1640	19½	9	47.00
14	x	6	15	54 x 16	31	438	1845	21½	9	50.00
16	x	6	18	54 x 19	31	438	2050	23½	9	52.00
14	x	6	15	60 x 16	30	471	1985	21½	9	60.00
16	x	6	18	60 x 19	30	471	2205	23½	9	62.00
18	x	6	20	60 x 21	30	471	2648	25½	10	65.00
14	x	6	15	66 x 16	29	501	2110	21½	9	70.00
16	x	6	18	66 x 19	29	501	2345	23½	9	73.00
18	x	6	20	66 x 21	29	501	2810	25½	10	76.00
16	x	6	18	72 x 19	28	527	2470	28½	9	85.00
18	x	6	20	72 x 21	28	527	2960	28½	10	88.00
20	x	6	22	72 x 23	28	527	3950	27½	10½	91.00

We recommend the use of Iron Boots with the above.



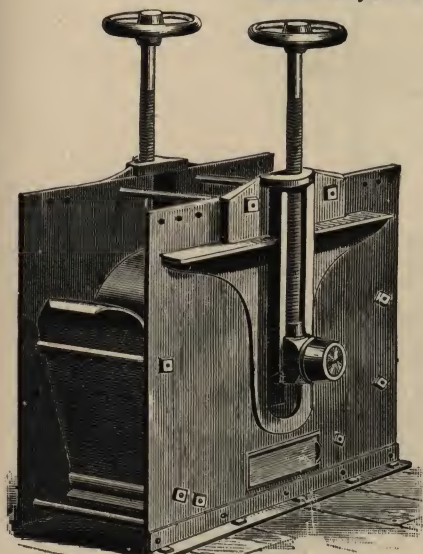
Galvanized Iron Heads and Boots

The above cuts represent our Galvanized Iron Elevator Head and Boot. When Galvanized Iron Trunking is used in connection with them, the construction is practically fire proof.

We are prepared to furnish all standard sizes, and will quote prices on application.

Wrought Iron Elevator Boots

WITH ADJUSTABLE TAKE-UP BOXES



Size of Cup, Inches	Size of Pulley, Inches	Width of Belt, Inches	Price
5 x 4	10 x 6	5½	24.00
6 x 4	12 x 7	6½	25.20
7 x 4½	14 x 9	8	26.25
8 x 5	14 x 10	9	28.50
9 x 5	16 x 11	10	33.00
9 x 6	16 x 11	10	34.20
10 x 5½	16 x 12	11	35.25
10 x 6	16 x 12	11	36.60
11 x 6	18 x 13	12	38.25
11 x 7	18 x 13	12	39.75
12 x 6	18 x 14	13	41.25
12 x 7	18 x 14	13	42.75
14 x 6	18 x 16	15	44.25
14 x 7	18 x 16	15	45.75
15 x 6	18 x 17	16	47.25
15 x 7	18 x 17	16	48.75
16 x 6	20 x 20	18	50.00
16 x 7	20 x 20	18	52.00

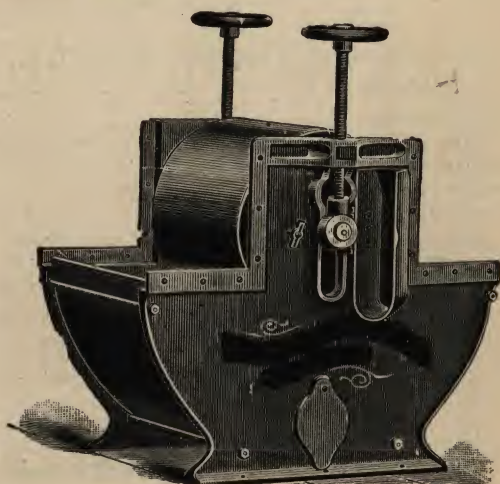
These Boots are furnished with turned and balanced pulleys, babbitted bearings and tightener complete, as shown in cut.

Sprocket wheels substituted for pulleys when desired.

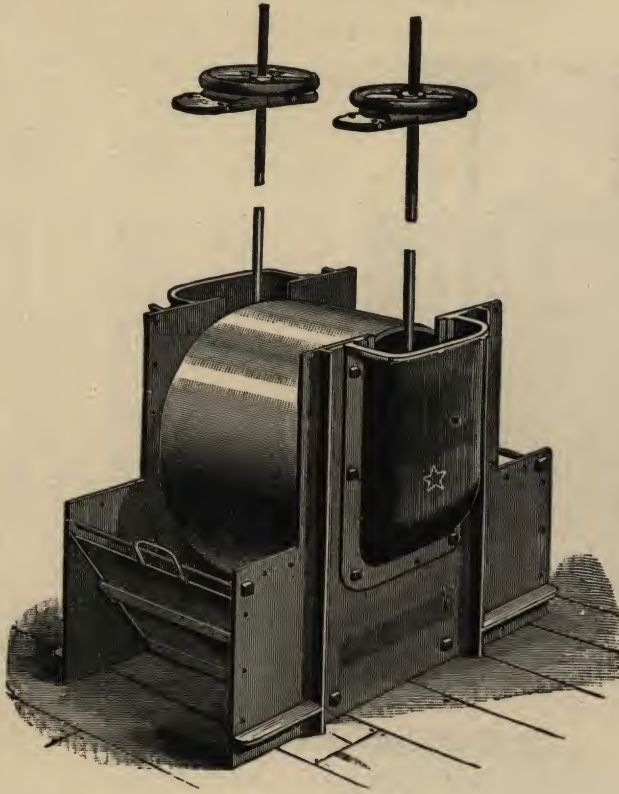
Cast Iron Elevator Boots

WITH ADJUSTABLE TAKE-UP BOXES

Size of Bucket, Inches	Size of Pulley, Inches	Width of Belt, Inches	Price
7 x 4½	14 x 9	8	33.75
8 x 5	14 x 10	9	35.25
9 x 5	16 x 11	10	40.50
9 x 6	16 x 11	10	41.70
10 x 5½	16 x 12	11	42.75
10 x 6	16 x 12	11	43.50
11 x 6	16 x 13	12	45.00
11 x 7	18 x 13	12	45.75
12 x 6	18 x 14	13	46.50
12 x 7	18 x 14	13	53.25
14 x 6	18 x 16	15	54.90
14 x 7	18 x 16	15	57.15
15 x 6	18 x 17	16	59.40
15 x 7	18 x 17	16	61.65
16 x 6	20 x 20	18	63.75
16 x 7	20 x 20	18	66.00
18 x 7	22 x 22	20	88.00
20 x 7	24 x 24	22	100.00



These boots are made strong and substantial, and are recommended for general elevator work. They are furnished with turned and balanced pulleys, bearings of ample size, and tightener. Sprocket wheels substituted for pulleys when desired.



Extra Heavy Cast Iron Elevator Boots

FOR LARGE ELEVATORS

This boot is made in two sizes, with 24 or 30 inch diameter pulley, for any width of bucket. The bearings are self-oiling and adjustable. One end of boot is removable to facilitate cleaning out in case of choke-ups.

Size of Bucket, Inches	Width of Belt, Inches	Face of Pulley, Inches	Price with 24" Diameter Pulley	Price with 30" Diameter Pulley
22 x 6 or 7	24	26	120.00	150.00
24 x 6 or 7	26	28	123.00	156.00
28 x 6 or 7	30	32	Prices on application.	
32 x 6 or 7	34	36		
36 x 6 or 7	38	40		

Special Elevator Boots

In addition to the elevator boots listed, we can make for you, in either wood or steel, anything special needed to suit your requirements.



Steel Tanks For Elevator Boots

We give below a list of our standard water-tight Steel Boot Tanks, but are prepared to furnish them in any size, shape or gauge of metal.

No.	Length at top	Length at bottom	Width	Height	Thickness of Steel					
					No. 16 Gauge	No. 14 Gauge	No. 12 Gauge	No. 10 Gauge	$\frac{1}{8}$ in.	$\frac{1}{4}$ in.
1	48	SAME AS TOP OR SMALLER	30	24	27.00	30.00	34.00	39.00		
2	48		30	30	30.00	34.00	39.00	44.00		
3	60		36	30	38.00	42.00	46.00	51.00	64.00	88.00
4	60		36	36	39.00	45.00	50.00	58.00	68.00	102.00
5	72		40	36	40.00	49.00	54.00	62.00	78.00	110.00
6	84		40	36	48.00	58.00	64.00	80.00	95.00	122.00
7	90		44	40		75.00	86.00	92.00	105.00	146.00
8	90		44	48			88.00	95.00	120.00	166.00
9	96		48	48			95.00	104.00	136.00	180.00
10	96		48	54			97.00	110.00	142.00	190.00
11	108		48	54			105.00	120.00	152.00	210.00
12	108		48	60			112.00	130.00	160.00	225.00
13	108		54	60			120.00	140.00	175.00	240.00
14	120		54	60				160.00	190.00	252.00
15	120		60	60				160.00	210.00	275.00



Plain Riveted Steel Pipe FOR SPOUTING

We have special facilities for making Plain Riveted Pipe any diameter and gauge of material required.

Size	B. W. Gauge	Black	Galvan-ized	Weight per Foot. Lbs.	Size	B. W. Gauge	Black	Galvan-ized	Weight per Foot. Lbs.
4 in. Diam.	20	.39	.48	2.00	9 in. Diam.	20	.75	.97	4.10
	18	.46	.58	2.45		18	.91	1.18	5.25
	16	.54	.70	3.20		16	1.17	1.47	7.50
5 in. Diam.	20	.45	.60	2.50		14	1.41	1.70	9.25
	18	.55	.70	3.00		12	1.79	2.50	11.80
	16	.65	.85	4.15		20	.82	1.05	5.00
6 in. Diam.	20	.52	.68	3.00	10 in. Diam.	18	1.00	1.30	5.75
	18	.63	.85	3.60		16	1.25	1.55	8.00
	16	.76	1.00	5.00		14	1.50	1.80	10.25
	14	.95	1.15	6.10		12	2.00	2.75	13.00
	12	1.31	1.90	8.00		20	.89	1.20	5.50
7 in. Diam.	20	.58	.75	3.25	11 in. Diam.	18	1.06	1.40	6.25
	18	.70	.90	4.00		16	1.31	1.70	8.50
	16	.87	1.15	5.50		14	1.61	1.95	11.25
	14	1.09	1.35	7.00		12	2.36	3.00	14.25
	12	1.47	2.10	9.10		20	1.02	1.35	6.00
8 in. Diam.	20	.66	.85	3.60	12 in. Diam.	18	1.27	1.65	7.50
	18	.81	1.05	4.60		16	1.57	2.05	10.25
	16	1.01	1.28	6.50		14	1.92	2.35	13.25
	14	1.23	1.50	8.25		12	2.62	3.25	17.00
	12	1.63	2.30	10.00					

The above prices are for slip or plain joints and for pipe of standard lengths. Prices with flange or bolted joint connections quoted upon application.



Flexible Spouts

Bifurcated Spout

Telescope Flexible Spouts FOR LOADING CARS

Will turn to any angle, and bend in any direction. A great improvement over the ordinary style of flexible spout.

Each section of spout is fastened to the chains with pivot bolts passing through links.

As the car becomes loaded, the spout may be telescoped (drawn up) until the car is entirely filled. It is especially adapted for locations where the space between the building and the car is limited.

Special sizes furnished to order. Spouts can be furnished to order with special size hoppers.

Unless otherwise specified, spouts will be made of No. 18 steel.

Diameter	Length	Size of Hopper	No. 18 Steel	No. 16 Steel	No. 14 Steel	No. 12 Steel
6"	5'	8" x 8"	8.50	10.00	13.00	17.00
6"	6'	8" x 8"	10.20	12.00	15.60	20.40
6"	8'	8" x 8"	13.60	16.00	20.80	27.20
8"	6'	10" x 10"	10.50	12.00	16.00	21.00
8"	8'	10" x 10"	14.00	16.00	21.85	28.00
8"	10'	10" x 10"	17.50	20.00	26.70	35.00
10"	6'	12" x 12"	11.60	12.85	16.85	21.40
10"	7'	12" x 12"	13.50	15.00	19.00	25.00
10"	8'	12" x 12"	15.45	17.15	21.75	28.55
10"	10'	12" x 12"	19.30	21.45	27.20	35.70
12"	8'	14" x 14"	18.50	20.00	25.00	30.00
12"	10'	14" x 14"	23.10	25.00	31.80	37.50

Give size of hopper wanted when ordering.

Bifurcated Car Loading Spout

This spout is acknowledged by all handlers of grain to be the most efficient car-loading spout on the market. It is easily handled by one man, and operated entirely from the outside of the car. It is provided with a switch valve, with necessary lever for diverting the flow of the grain from either one curved end or the other, or equally dividing the stream of grain, according to the will of the operator. It is provided with a hinged connection for attaching to shipping spouts, and is always in readiness to swing into the car. When not in use the lower end of the spout swings of its own weight clear of the car. It is so constructed with detachable linings that when they become worn they can be readily replaced at a small expense. The upper end of the spout can be attached to a telescope sleeve so that it can be raised or lowered by means of a chain fall to suit different heights of cars.

The general dimensions of this spout are as follows: The head where it attaches to stationary spout is 16½ inches long and 14½ inches wide. The distance from the top of this head to the hinge is 24 inches. From the hinge to the extreme point of the bifurcated spout is 40 inches. The spread of the bifurcated spout is 4 feet.

Price..... 55.00

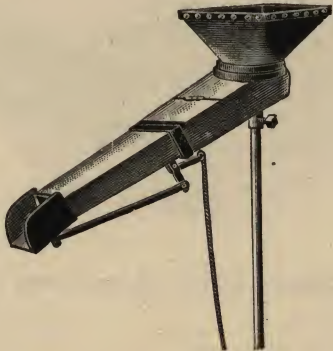


Distributing Spout For Heads of Elevators

The hopper of these spouts has a telescoping sleeve which extends down into the elbow of the spout loosely, and allows considerable settling of the building without affecting its freedom of action.

Diameter of Spout Inside	Price, All Steel	Price, with Cast Iron Hopper and Elbow	Center of Rod to Center of Discharge	Top of Hopper to Bottom of Spout
6½"	9.00	12.00	30"	33"
9"	12.00	16.00	36"	41½"
12"	16.00	20.00	42"	47½"

The measurements from center of rod to center of discharge can be increased or decreased, but for each inch of increase or decrease in this measurement the height will be increased or decreased about ⅙ of an inch.



**Steel Crane Spouts
FOR HEAD OF ELEVATOR**

The Crane Spouts are made with cast iron bottoms, with socket and set screw to receive the upper end of the indicator rod.

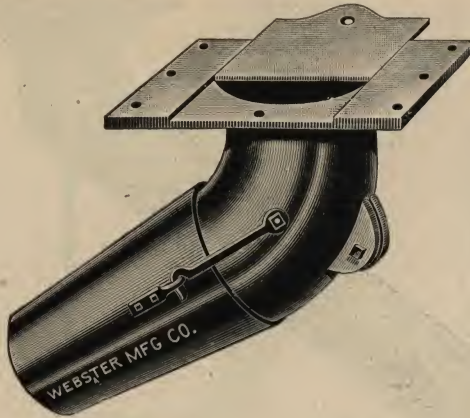
N. B.—In ordering, always state the width of Elevator Belt used; or if for Chain Elevator, give the inside measurement of the discharge spout at the head of the elevator.

8-inch Crane Spout and Tunnel for bulk grain.....	7.50
10-inch Crane Spout and Tunnel for bulk grain.....	8.50
12-inch Crane Spout and Tunnel for bulk grain.....	10.50
12-inch Crane Spout and Tunnel for ear corn, or corn and cobs.....	12.00

The 8-inch Spout is suitable for buckets 6 to 9 inches long.

The 10-inch Spout is suitable for buckets 9 to 12 inches long.

The 12-inch Spout is suitable for buckets 12 to 16 inches long.

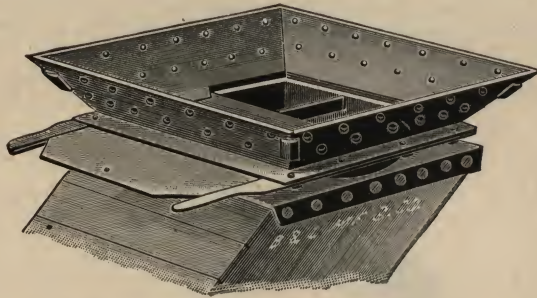


Swivel Grain Spouts

We make our Turn Heads with a wrought iron cut-off, and with an adjustable spout. The adjustable spout is a great improvement over the old style, as it allows a discharge of the grain in various angles. Also please note that the curve of our spout, where the grain strikes, is made of cast iron. This material being much heavier than sheet iron renders it much more durable than the ordinary sheet iron spouts.

An additional charge of 75 cents is made when we furnish the wrought iron handle to turn spout.

6 inch.....	6.00	10 inch.....	10.00
8 inch.....	8.00	12 inch.....	12.00
9 inch.....	9.00		



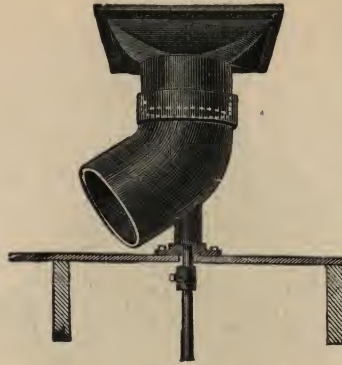
Hopper Bottoms, With Revolvers and Slides

10 inch.....	12.00	14 inch.....	16.00	18 inch.....	22.00
12 inch.....	14.00	16 inch.....	20.00	24 inch.....	24.00



Bin Bottoms

8 inch.....	7.00	12 inch.....	10.00	18 inch.....	16.00
10 inch.....	8.00	14 inch.....	12.00	24 inch.....	28.00



Cast Iron Turn Head With Hopper

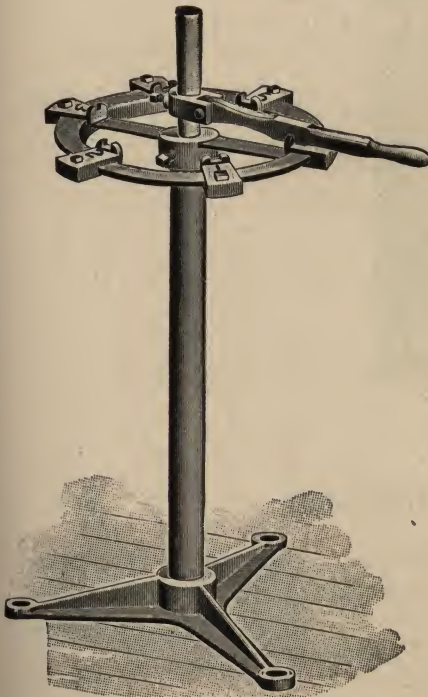
Please notice that the elbow of this Turn Head fits loosely over the hopper bottom, thus adjusting itself to any settling of the building.

It is thoroughly durable, being made entirely of cast iron.

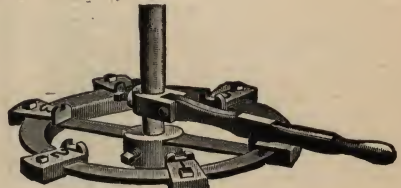
PRICE LIST, INCLUDING HOPPER

7 inches.....	9.00
8 inches.....	10.00
9 inches.....	11.00
12 inches.....	15.00

Indicator Stands and Rings



Indicator Stand



Indicator Ring

INDICATOR STAND

For elevators up to 50' high we recommend indicator rod $1\frac{1}{4}$ " outside diameter; for elevators over 50' high, rod $1\frac{1}{2}$ " outside diameter. The regular stand is 32" high from floor to rim of indicator hoop.

Price with hoop, figures and lever.... 6.00

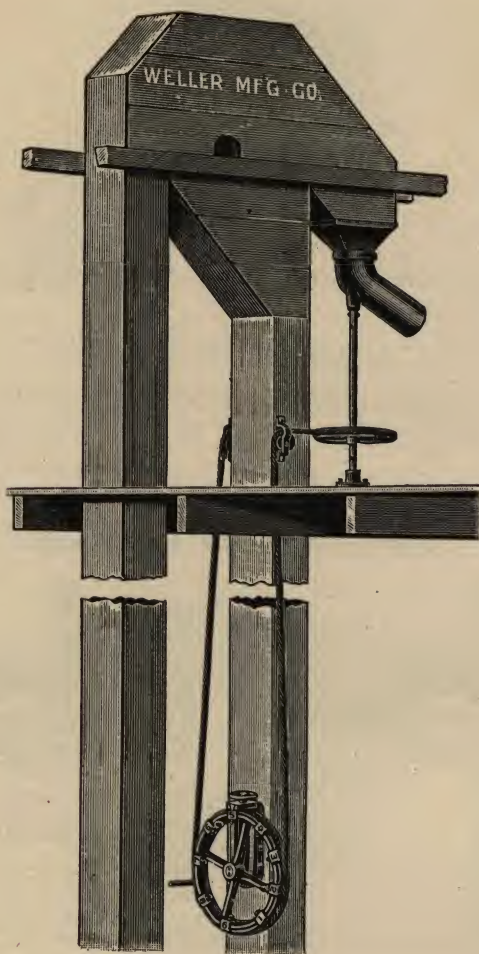
INDICATOR RING

Indicator Ring with figures and latch, bored for $1\frac{1}{4}$ " outside diameter rod.. 4.00

INDICATOR RODS

Indicator Rod, $1\frac{1}{4}$ " outside diameter, per foot, including couplings..... .18

Indicator Rod, $1\frac{1}{2}$ " outside diameter, per foot, including couplings..... .24



Wire Rope Indicators

For revolving turn-head spouts it is sometimes preferable to use instead of indicator stands, wire rope with wheels, as shown in the accompanying cut.

Indicator wheel with six numbers and tightener frame, upper wheel bored for stem of turn-spout, 2 sheaves for turning corner, without rope, stem, or stem bearing.....	7.50
Flexible galvanized wire rope, 3-16-inch diameter, extra per foot, net.....	.05

**Adjustable Bin Gates**

Size, Inches	Price
8 x 10	2.00
10 x 12	2.25
12 x 14	2.50
14 x 16	3.00
16 x 18	3.50
18 x 20	4.00
20 x 22	4.50
22 x 24	5.00

**Bin Gates With Spout**

Size, Inches	Price
8 x 10	2.50
10 x 12	2.75
12 x 14	3.00
14 x 16	3.60
16 x 18	4.20
18 x 20	4.80
20 x 22	5.40
22 x 24	6.00

Feed Gates For Elevator Legs

WITH SLIDES, GUIDES, RACK AND PINION, HAND WHEEL, AND 10 FOOT STEM COMPLETE

10"x14"----- 5.00 16"x20"----- 6.00 20"x24"----- 7.00

**Steel Gates**

Made of heavy sheet steel with round iron stem 3 feet long.
For additional length of stem, when wanted, add 10 cents per foot to following list prices.

Size	Price	Size	Price	Size	Price
8 x 10	.95	12 x 16	1.50	16 x 24	2.30
8 x 12	1.00	12 x 18	1.60	18 x 20	2.40
8 x 14	1.10	14 x 16	1.70	18 x 24	2.70
10 x 12	1.15	14 x 18	1.80	18 x 28	3.00
10 x 14	1.20	14 x 20	1.95	20 x 24	3.15
10 x 16	1.25	16 x 18	2.05	20 x 30	3.25
12 x 14	1.40	16 x 20	2.15		

Other sizes at proportionate prices.

Gate Guides For Above Gates

Length	12"	14"	16"	18"	20"	22"	24"	26"	28"	30"	32"	34"	36"
Per pair	.55	.60	.70	.75	.80	.85	.90	.95	1.05	1.10	1.15	1.20	1.25
Length	38"	40"	42"	44"	46"	48"	50"	52"	54"	56"	58"	60"	
Per pair	1.35	1.40	1.45	1.50	1.60	1.65	1.70	1.80	1.85	1.90	2.00	2.10	

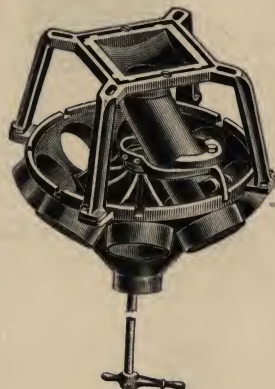
See cut of Gate Guides in connection with Bin Gates at top of this page.

Hall Signaling Grain Distributor

The use of this device renders impossible the mixing of grain in the various bins at the point of distribution in the elevator cupola, either from inaccurate locking or the overflowing of bins.

It occupies less room, requiring less cupola space than any other device, and consequently gives increased bin capacity, making a great saving in first cost of roof and cupola.

With this device the operator never need visit the cupola of his elevator for the purposes of grain distribution. He could do no good there. It is unlocked and locked (and cannot be locked out of connection with a bin) entirely from the lower floor.



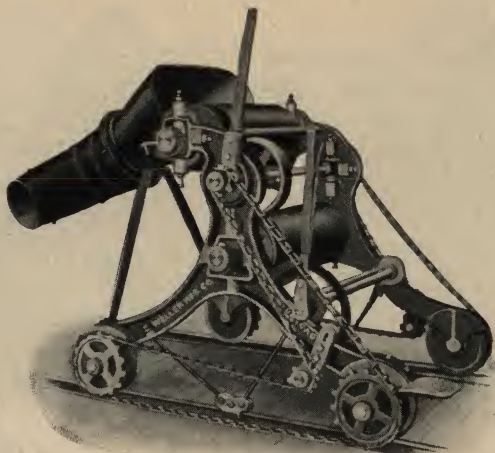
The Automatic "Signal"

When a bin fills full and the grain backs up in the bin tube to the spout (with the last pint of grain that the bin and tube will hold), it cannot back up any higher because it instantly and automatically "signals" the operator on the lower floor that the bin is full, who shuts off the inflowing grain, until the signaling ceases. He then turns the empty spout to another bin without the possibility of a kernel mixing.

This unique feature of preventing the grain from backing up into the elevator head and overflowing down the back leg also prevents choking the boot, which sometimes causes a fire to start by the friction of the belt on the head pulley. It is also a well-known fact that accumulated grain in the elevator head and spout must necessarily mix (when the spout is turned) into every bin tube over which the spout passes. All this is prevented by using this distributor. For efficiency, accuracy, durability and economy this device is unrivaled. It performs all the desirable ends of grain distribution with absolute precision and fidelity.

For Cups 10" x 6" and Smaller			For Cups Larger than 10" x 6"			For Filling Garners or Scales in Large Elevators		
1907 No.	No. of Ducts	Prices Net Cash	1907 No.	No. of Ducts	Prices Net Cash	1907 No.	No. of Ducts	Prices Net Cash
68	8	55.00	78	8	60.00	916	1	25.00
610	10	60.00	710	10	65.00	122	2	95.00
612	12	65.00	712	12	70.00	123	3	100.00
615	15	75.00	715	15	80.00	12-14	4	60.00
						9-9-20	20	250.00

These prices include hopper, spout, frame, frame bolts, distributing case, overflow funnel, 40 feet operating rod, lever, dial board, cast elbow for overflow spout, and a set of numbered bin cards.



Two-Pulley Self-Propelling Tripper

Belt Conveyor Trippers

This Tripper will convey material in one direction only and is provided with moving attachment. This style of Tripper is made with either high or low frames as may be desired.



Two-Pulley Plain Tripper

The construction of this Tripper is similar to the Two-Pulley Self-Propelling pattern, but without the moving attachment. When desired, we can furnish a spool on the lower pulley shaft, around which can be wound a rope, fastened at one end of the conveyor, and the spool revolving winds the rope and draws the Tripper in any desired direction.

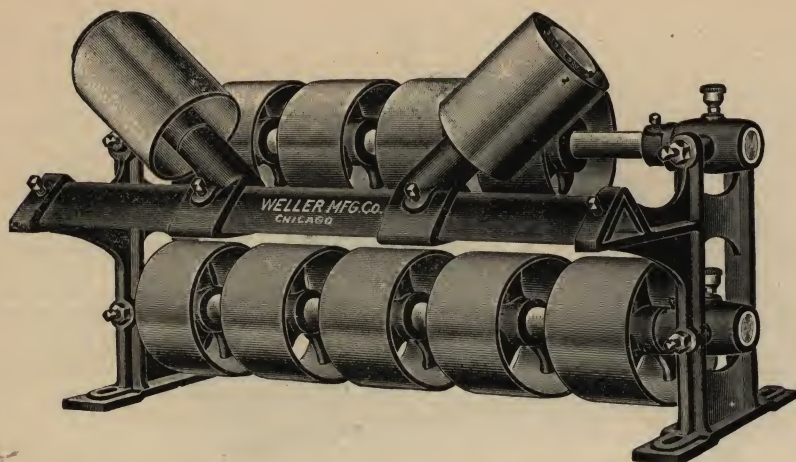
Both the above Trippers are made with either high or low frames and with switch valve or swivel discharge spouts.

Prices quoted upon application.

We are also prepared to furnish

HEAVY DUTY SELF-PROPELLING TRIPPERS REVERSIBLE SELF-PROPELLING TRIPPERS

Prices upon application.

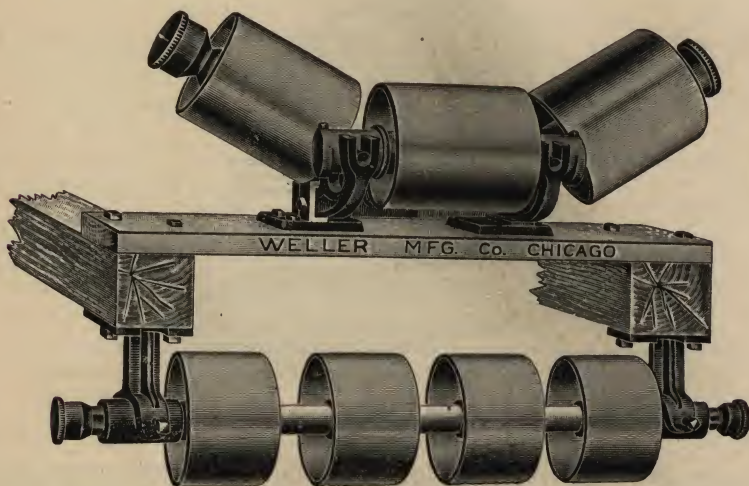


Standard Combination Troughing Carrier

STYLE F

Although suitable for general service, these carriers are designed particularly for grain conveyors and is the type adopted by several of the leading engineers and builders of terminal elevators throughout the country, many of the prominent houses built in recent years being equipped with them. Oscillating bearings, either plain, fitted with grease cups, self oiling, ring oiling or roller are furnished for the horizontal roll shafts. The troughing rolls run on hollow perforated steel shafts filled with grease which is fed by means of compression cups and are horizontally adjustable on the angle iron cross bar.

Prices quoted upon application.

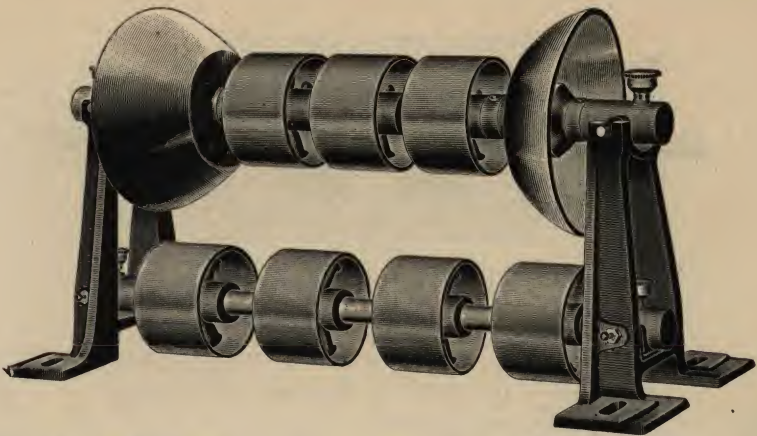


Adjustable Troughing Carrier With Independent Return Rolls

STYLE E

The above Carrier is provided with troughing rolls adjustable to any angle. Local conditions are frequently such that independent return rolls are necessary, and the above has been designed with this object in view.

Prices quoted upon application.



Standard Bell Troughing Carrier With Return Rolls
STYLE G

To arrive at the price of this Carrier, add together the cost of the following for the desired width of belt.

Bell Troughing Rolls, page.....	140
Pulley Rolls, page.....	140
Double Bearing Roll Stands, page.....	139

The total will be the cost complete.



Double Stand



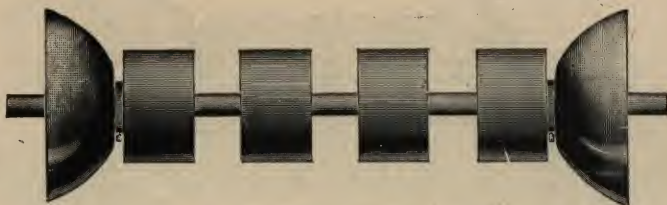
Single Stand

Belt Conveyor Double Bearing Roll Stand

Price, each 3.50

Belt Conveyor Single Roll Stand

Height to Center of Bearing.....	3	4	6	9	12	14
Price	1.10	1.20	1.30	1.40	1.50	1.60



Bell Troughing Rolls

PULLEY PATTERN

Width of Belt	Diameter and Length of Shaft	Diam. of Bell Pulleys	Pulleys		Price
			Number	Size	
12"	1 $\frac{3}{8}$ x 21	12"	1	6 x 4	5.44
14"	1 $\frac{3}{8}$ x 23	12"	1	6 x 4	5.60
16"	1 $\frac{3}{8}$ x 25	12"	1	6 x 4	5.70
18"	1 $\frac{3}{8}$ x 27	12"	2	6 x 4	6.18
20"	1 $\frac{3}{8}$ x 29	12"	2	6 x 4	6.28
22"	1 $\frac{3}{8}$ x 31	12"	2	6 x 4	6.38
24"	1 $\frac{3}{8}$ x 33	12"	3	6 x 4	7.40
26"	1 $\frac{3}{8}$ x 36	12"	3	6 x 4	7.68
28"	1 $\frac{3}{8}$ x 38	12"	3	6 x 4	7.88
30"	1 $\frac{3}{8}$ x 40	12"	3	6 x 4	8.10
36"	1 $\frac{3}{8}$ x 46	12"	4	6 x 4	9.40
40"	1 $\frac{3}{8}$ x 50	12"	5	6 x 4	10.70
48"	1 $\frac{3}{8}$ x 58	12"	6	6 x 4	12.36

Dimensions of Standard Projections 1 $\frac{3}{8}$ x 3 $\frac{1}{2}$ inches.

An additional charge is made for projections of larger diameter or length than standard.

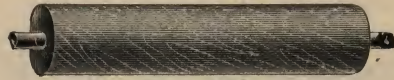


Belt Conveyor Pulley Rolls

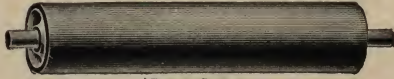
Width of Belt	Diam. and Length of Shaft	Pulleys		Price
		Number	Size	
12"	1 $\frac{3}{8}$ x 21	3	6 x 4	3.26
14"	1 $\frac{3}{8}$ x 23	3	6 x 4	3.34
16"	1 $\frac{3}{8}$ x 25	3	6 x 4	3.40
18"	1 $\frac{3}{8}$ x 27	4	6 x 4	4.22
20"	1 $\frac{3}{8}$ x 29	4	6 x 4	4.32
22"	1 $\frac{3}{8}$ x 31	4	6 x 4	4.40
24"	1 $\frac{3}{8}$ x 33	4	6 x 4	5.30
26"	1 $\frac{3}{8}$ x 36	5	6 x 4	5.50
28"	1 $\frac{3}{8}$ x 38	5	6 x 4	5.60
30"	1 $\frac{3}{8}$ x 40	5	6 x 4	5.66
36"	1 $\frac{3}{8}$ x 46	6	6 x 4	6.90
40"	1 $\frac{3}{8}$ x 50	7	6 x 4	8.10
48"	1 $\frac{3}{8}$ x 58	8	6 x 4	9.70

Dimensions of Standard Projections 1 $\frac{3}{8}$ x 3 $\frac{1}{2}$ inches.

An additional charge is made for projections of larger diameter or length than standard.



Wood Roller

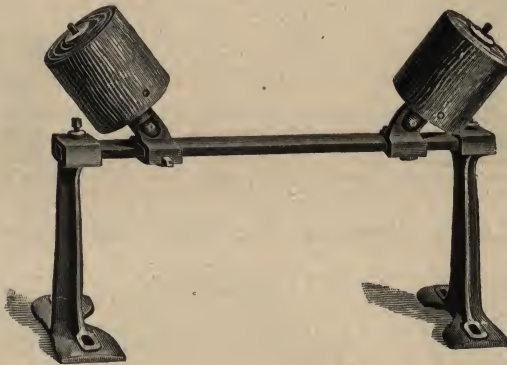


Iron Roller

Flat Rollers For Conveyor Belts

IRON ROLLERS			WOOD ROLLERS		
Width of Belt	Price of 5" Diam. Roller	Price of 6" Diam. Roller	Width of Belt	Diameter of Roller, Inches	Price
16"	4.50	5.50	10"	5½	1.60
18"	4.60	5.75	12"	5½	1.75
20"	4.75	6.00	14"	5½	1.90
22"	5.00	6.50	16"	5½	2.10
24"	5.50	7.25	18"	5½	2.25
26"	6.00	7.75	20"	5½	2.40
28"	6.50	8.25	22"	5½	2.55
30"	7.00	8.75	24"	5½	2.75
32"	7.50	9.25	26"	5½	2.95
36"	8.00	9.75	28"	5½	3.15
40"	8.75	10.50	30"	5½	3.35
44"	9.35	11.00	36"	5½	3.75
48"	10.00	11.65	40"	5½	4.25

Journals are 1½" diameter and 2½" long.



Adjustable Wood Concentrator Rollers

Width of Belt	Cross Bars		Size of Roller	Price per Pair Without Stands
	Size	Length		
18"	1½ x 2	25"	5½ x 6	5.10
20"	1½ x 2	27"	5½ x 6	5.15
22"	1½ x 2	29"	5½ x 6	5.20
24"	1½ x 2	31"	5½ x 6	5.25
26"	1½ x 2	33"	5½ x 6	5.30
28"	1½ x 2	35"	5½ x 6	5.35
30"	1½ x 2	37"	5½ x 6	5.40
32"	1½ x 2	39"	5½ x 6	5.45
34"	1½ x 2	41"	5½ x 6	5.50
36"	1½ x 2	43"	5½ x 6	5.60
38"	1½ x 2	45"	5½ x 6	5.70
40"	1½ x 2	47"	5½ x 6	5.80
42"	1½ x 2	49"	5½ x 6	5.90

Stands 6" high, per pair..... 2.00



Belt Conveyor Drop Hangers FOR RETURN ROLLS

Drop to Center of Bearing-----	3	4	6	9	12	14
Price -----	1.10	1.20	1.30	1.40	1.50	1.60



Angle



Straight

Guide Sheaves For Belt Conveyor

Price, either style----- 2.00



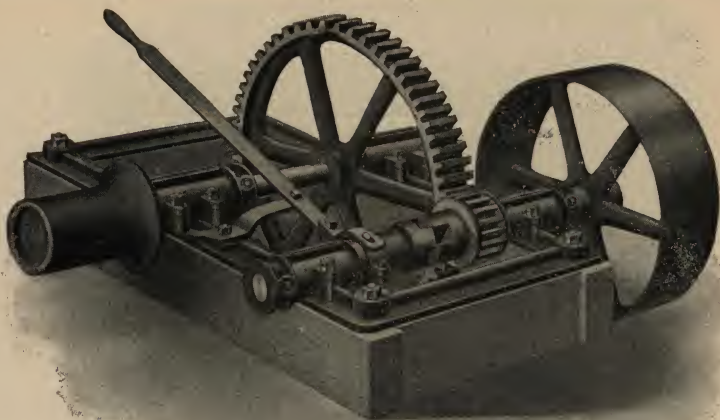
Style A. Plain Oiling



Style B. Self Oiling

Belt Conveyor Roll Journal Boxes

Size	Style A. Plain Oiling	Style B. Self Oiling	Style A with Grease Cup	Height to Center of Bearing	Length of Base	Width of Base	Thickness of Base	Size of Bolt
$\frac{1}{8}$	.85	1.00	1.10	1"	5 $\frac{1}{2}$ "	2"	$\frac{7}{16}$ "	$\frac{3}{8}$ "
$1\frac{1}{4}$	1.00	1.15	1.25	1"	5 $\frac{3}{4}$ "	2"	$\frac{7}{16}$ "	$\frac{3}{8}$ "



Car Pullers

Our Car Puller is compactly built, and takes but little space.
The capacities are based on pulling cars on a level and straight track.
Proper charge or deduction will be made for change in size of pulley.

PRICE LIST

Number	Capacity Cars	Prices		Size Pulley	Speed of Driving Pulley
		With Jaw Clutch	With Friction Clutch		
1	2 to 3	100.00	150.00	16 x 6½	200
2	6 to 8	150.00	220.00	24 x 10½	200
3	10 to 15	250.00	350.00	30 x 12½	200

The No. 2 Car Puller is mounted on a cast iron bed plate as shown in cut, but the wood frame is not included.

The No. 1 Car Puller is mounted on rigid cast iron sole plates.

The No. 3 Car Puller is mounted on adjustable cast iron sole plates.

If rope drum and connections for the No. 2 machine are wanted, add 60.00 to list prices; if for the No. 3 machine, add 80.00 to list prices. The rope drum when used, is usually located above the car puller and is a great convenience, when room is limited, for handling ropes. It also adds to the life of the rope by keeping it in good condition. Prices do not include rope, lead sheaves, or car hook.

Estimates furnished on other styles of car pullers.



Double



Single

Car Puller Lead Sheaves

The frame is a solid casting, with sheaves set in. It is made extra heavy, and strong enough to withstand any strain of rope.

	Double	Single
With 6" sheaves.....	20.00	10.00
With 12" sheaves.....	25.00	15.00

Car Puller Rope

We recommend for car puller work a special rope made of wire and hemp, which combines the pliability and wearing surface of hemp rope with the strength of wire rope. This special rope is composed of five strands with nineteen crucible cast steel wires to the strand, each strand covered with a special hemp marline.

Price of 3", for 1 to 4 cars on nigger head not less than 10" diameter, per foot..... .30
Price of 1", for over 4 cars on nigger head not less than 12" diameter, per foot..... .37½

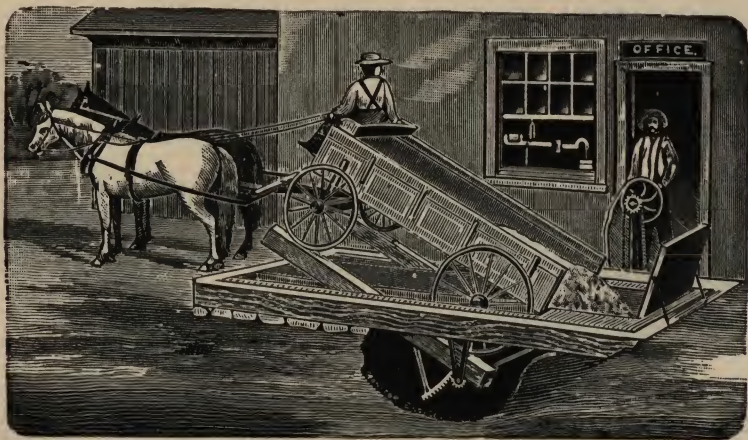


Great Western Overhead Dump

This Dump is simple in construction, compact, requires little space in the driveway, easy to operate, requires no blocking of wagon, and does not break coupling poles.

The advantage over other dumps is that it takes up no room in your dump and you can fill the dump to the floor.

Price..... 50.00



Great Western Controllable Wagon Dump

In connection with dump scales, the controllable feature of this dump makes it very desirable, as the wagon can be raised and lowered without the least shock or jar, thereby preventing excessive wear on the knife blades of the scales, and damage to the wagon or dump.

Price of Irons and Building Plan..... 50.00

Irons for "Standard" dump, complete with chain and Building Plan..... 20.00

Irons for "Granger" dump, complete with chain and Building Plan..... 12.00



Great Western Shaker Ear Corn Feeder

The above cut illustrates the Great Western Shaker Ear Corn Feeder, which is designed to take ear corn from a dump sink, bin, or crib, and deliver it in a regular, continuous stream to a sheller, elevator, conveyor, or drag belt.

There is a vibrating shoe, driven by eccentric on the shaft. The shoe is formed with steps on the upper surface, which force the corn toward the discharge end. The movable gate regulates the volume of the stream of corn. The main frame is of heavy planks bolted together. All the working parts are iron and steel, including the journal boxes, shaft, pitman, shoe, and gate. The gate has holes drilled to admit of attaching a regulating rod from above.

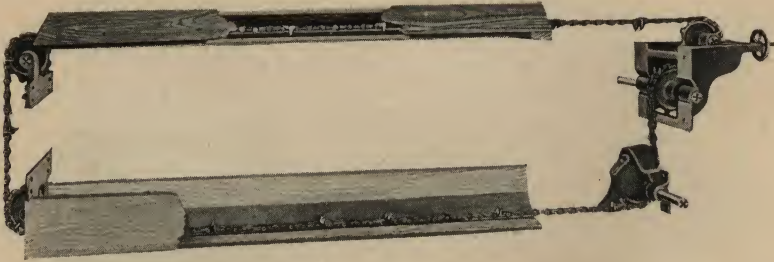
The machine may be placed in the bottom of the dump pit, and the cant boards or hopper may start from the sides of the Feeder. Provision should be made for stopping and starting the Feeder at will, by means of counter-shaft and shifting belt, or by clutch attached to the driving sprocket on line shaft.

Speed, 150 to 200 revolutions per minute.

DIMENSIONS AND PRICE

Length, 5'. Width over all, 2'. Height, 13". Sprocket on machine is $7\frac{1}{2}$ " No. 77, having 10 teeth.

Price----- 100.00



Great Western Chain Conveyor and Feeder

This Chain Drag Feeder for conveying grain consists of a cast iron head with two sprocket wheels, one being the take-up or tightener sprocket. The cast iron boxes for these sprockets are stationary on this head, and require no extra posts for take-up sprocket. The take-up in the head is adjustable, so that the sprocket can be adjusted without any changes in the boxes.

The yoke and rake-off have stationary bearings for the lower sprocket all combined, and the rake-off is adjustable to any degree, so that if your drag chain is on an incline your timbers to hold the cast iron head and yoke are perpendicular, and only require the two timbers to support the head and yoke, which is a great advantage over other drag heads. Timbers should not be less than 4x4.

The drive can be attached to the lower shaft with yoke or the shaft in cast head, according to the direction of your drive, so it is immaterial which way your drive counter runs. If preferable, the cast head with take-up can be put on opposite end of drag, if not necessary to drive from this sprocket. The two sprockets on back end of drag are also on yoke with bearings combined. - All iron bearings babbitted.

The chain fits the cast iron lining for bottom of drag perfectly, so that it cleans the drag, and when used for different kinds of grain there is no mixing.

Drive shaft is $1\frac{1}{4}$. Speed 40 to 60 revolutions per minute.

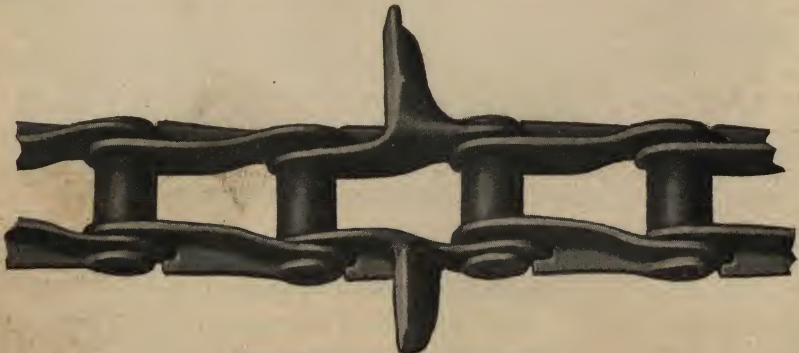
The Style A drag, complete, consists of the following: Cast head with shafts, sprockets, take-up screw and bearings; rake-off with shaft, sprocket and bearings; end sprockets with shafts and bearings; 30 feet No. 77 special chain with special attachments every 16"; 10 feet bottom box with cast iron lining to fit chain; 10 feet return box with wrought iron track.

Price.....	50.00
Each additional foot bottom box, return box and 2 feet chain.....	2.00

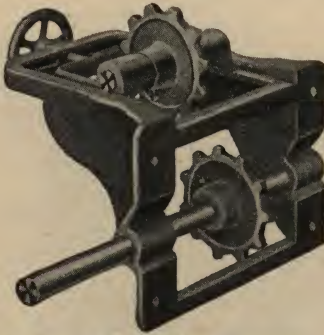
The Style B drag, complete, consists of the following: Cast head with shafts, sprockets, take-up screw and bearings; rake-off with shaft, sprocket and bearings; end sprockets with shafts and bearings; 30 feet No. 77 special chain with special attachments every 16"; 10 feet cast iron lining to fit chain; 10 feet wrought iron track.

Price.....	43.00
Each additional foot cast lining, return track and 2 feet chain.....	1.20

Style B is same as Style A except the wood bottom box and return box shown in cut are not furnished.



Style of Chain used in above Feeders.



Cast Head with Tightener Sprocket



Cast Adjustable Rake-off with Sprocket



Cast End with Sprocket



Cast Iron Lining used in Bottom

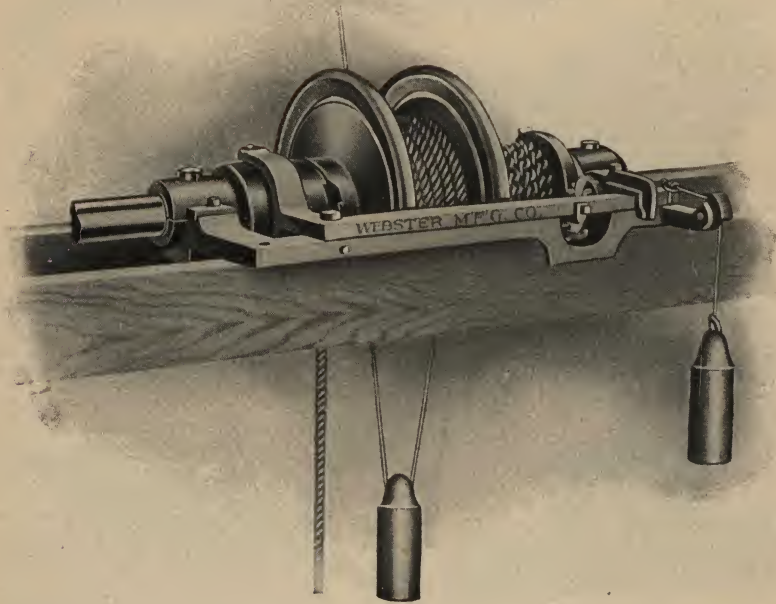


Special Rake-off used where it is necessary to rake-off grain at different points on drag. When not in use can be turned up out of position.

Great Western Chain Conveyor and Feeder

PRICE LIST OF PARTS

Cast Head with Tightener Sprocket, Shaft and Bearings.....	12.50
Cast Adjustable Rake-off with Sprocket Shaft and Bearings.....	9.00
Cast End with Sprocket, Shaft and Bearings.....	4.00
Special Rake-off	10.00
Cast Iron Lining, per foot.....	.40
No. 67 Special Chain, per foot.....	.33
No. 77 Special Chain, per foot.....	.36



Clark Power Grain Shovel

FOR UNLOADING GRAIN FROM CARS

With a single machine one man can unload a car of 500 bushels of wheat or small grain in about fifteen minutes, or two men with a double machine can unload a car of the same capacity in about half the time.

A pair of shovels (double machine) consists of two single machines placed on the same shaft.

A complete outfit for a single machine consists of:

- 1 Shovel mechanism complete on $2\frac{1}{8}$ "x5' shaft.
- 1 Wood Scoop 33"x30".
- 1 Scoop Chain.
- 1 Eye Weight.
- 1 Sheave Weight.
- 2 Solid Iron Sheaves 8"x3 $\frac{1}{2}$ " without frames.
- 1 Universal Sheave.
- 16' Sash Cord for weights.
- 50' 1" Manila Rope for scoop.

A complete outfit for a double machine consists of twice as many of the above items.

The size of bed plate of the single machine is 3' 4" long by 2' 2" wide. Speed of shaft 60 to 65 revolutions per minute. Weight 800 lbs.

PRICE LIST

Single machine complete with all fittings as specified.....	100.00
Double machine complete with all fittings as specified.....	200.00

Extra Strong Grain Shovel Rope

We highly recommend this rope. It is composed of six strands of wire, nineteen wires to the strand, each strand covered with a special hemp marline. This construction combines the pliability and wearing surface of Manila rope with the strength of wire rope.

Price of $\frac{3}{8}$ ", per foot..... .27



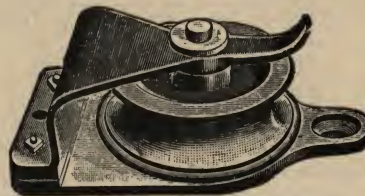
Wooden Scoop



Hook for Scoop



Floor Swivel Sheave



Car Door Sheave in Frame

Power Grain Shovel Appliances

Wooden Scoop	4.25
Ear Corn Scoop with iron teeth.....	15.00
Bent Hickory Handles for Scoop, each.....	.50
Hook for Scoop, net.....	.25
Scoop Chain	1.00
Floor Swivel Sheave.....	4.50
Car Door Sheave in frame.....	5.00



Boss Car Loaders

The car loader is stationary and may be placed on brackets inside or outside the wall. It connects direct with the down spout from loading bin or elevator head. The bifurcated discharge spouts extend into the car, and are easily and quickly removable. It successfully loads both ends and center of the car. It blows the dust out of grain and raises its grade.

Made in five sizes as follows:

No. 8, having capacity of 20 bushels per minute.....	70.00
No. 10, having capacity of 30 bushels per minute.....	72.50
No. 12, having capacity of 40 bushels per minute.....	75.00
No. 14, having capacity of 50 bushels per minute.....	80.00
No. 16, having capacity of 60 bushels per minute.....	85.00



Spiral Steel Conveyor

Diameter	Price per Foot		Standard Lengths	Inside Diameter of Hollow Shaft	Revolutions per Minute	Capacity per Hour Bushels
	Steel Flights	Galvanized				
4"	1.40	1.90	8'	1"	100	100
6"	2.00	2.70	10'	1½"	140	300
9"	2.50	3.50	10'	1½"	150	1000
12"	3.50	5.00	12'	2"	160	2000
16"	5.50	8.00	12'	2"	160	3000
16"	6.25	8.75	12'	3"	160	5000
18"	7.50	10.50	12'	3"	160	6000

The standard lengths, as given above, include the length of one hanger bearing.

Intermediate sizes furnished at price of next largest size, but not carried in stock. Prices include sheet iron linings, one hanger, one coupling and bolts, with each standard length, ready to go into wooden box. The standard diameter of the driving ends is the same as the "inside diameter of hollow shaft" in above table. Driving ends charged extra.

Heavy Spiral Steel Conveyor

Diameter	Inside Diameter of Pipe	Thickness of Steel Flight	Price per Foot	Standard Length
4"	1"	1"	2.50	8'
4"	1"	1½"	3.00	8'
4"	1"	2"	3.50	8'
6"	1½"	1½"	3.00	10'
6"	1½"	2"	3.50	10'
6"	1½"	2½"	4.50	10'
9"	1½"	2"	3.75	10'
9"	1½"	2½"	4.50	10'
9"	2"	2"	5.50	10'
9"	2"	2½"	4.75	10'
9"	2"	3"	5.50	10'
9"	2"	3½"	6.50	10'
9"	2"	4"	7.50	10'
9"	2"	4½"	9.00	10'
12"	2"	4"	5.00	12'
12"	2"	4½"	6.00	12'
12"	2"	5"	7.00	12'
12"	2"	5½"	7.50	12'
12"	2"	6"	8.50	12'
12"	2"	6½"	10.00	12'
12"	2"	7"	12.00	12'
14"	3"	6"	7.25	12'
14"	3"	6½"	8.25	12'
14"	3"	7"	9.50	12'
16"	3"	7"	15.00	12'
16"	3"	7½"	8.50	12'
16"	3"	8"	10.00	12'
16"	3"	8½"	9.50	12'
16"	3"	9"	11.00	12'
16"	3"	9½"	13.50	12'
16"	3"	10"	16.00	12'
18"	3"	10"	12.00	12'
18"	3"	10½"	14.00	12'
18"	3"	11"	16.00	12'
18"	3"	11½"	19.00	12'
18"	3"	12"	25.00	12'

The above prices are for regular thickness of hollow shaft and include hangers (one for each length), and couplings, but no lining. If extra heavy hollow shaft or solid shaft is needed, we will quote special prices upon request.

The standard lengths, as given above, include the length of one hanger bearing.



Helicoid Spiral Steel Conveyor

The Helicoid Flight is one continuous strip of metal without laps or rivets.

Diameter	Price per Foot		Standard Lengths	Diam. of Couplings	Inside Diam. Hollow Shaft	Outside Diam. Hollow Shaft	Revolutions per Minute	Capacity per Hour, Bushels
	Black	Galvanized						
4"	1.40	1.90	8'	1"	1 1/4"	1 1/4"	100	100
6"	2.00	2.70	10'	1 1/4"	1 3/4"	2 1/4"	140	300
9"	2.50	3.50	10'	1 3/4"	2"	2 3/4"	150	1000
12"	3.50	5.00	12'	2"	2 1/4"	2 3/4"	160	2000
16"	6.25	8.75	12'	3"	3 1/4"	4"	160	5000

The standard lengths, as given above, include the length of one hanger bearing. Intermediate sizes not carried in stock, but furnished at special prices. Prices include sheet iron lining, one hanger, one coupling and bolts, with each standard length. The standard diameter of driving ends is same as "diameter of couplings" in above table.

Price List of Conveyor Fixtures

Our price list includes lining and hangers, but when wanted for repairs or extras we charge as follows:

Diameter of Conveyor-----	4"	6"	9"	12"	16"
Hangers -----each	.40	.60	1.00	1.80	4.50
Linings -----per foot	.08	.10	.16	.20	.36
Flights -----per lineal foot	.50	.80	1.00	1.40	2.50
Couplings -----each	.50	.75	.75	1.50	2.50

Above prices of fixtures do not apply when fixtures are not wanted with conveyor.

Heavy Helicoid Conveyor

Diameter	Price per Foot	Standard Lengths	Thickness of Flight		Inside Diam. Pipe	Diam. of Couplings
			Next Pipe	Outer Edge		
4X	2.50	8'	3/8"	.11"	1 1/4"	1"
6X	3.00	10'	1/2"	.125"	1 3/4"	1 1/4"
6XX	3.50	10'	5/8"	.2"	1 3/4"	1 1/4"
9X	4.75	10'	3/4"	.172"	2"	1 3/4"
9XX	5.50	10'	7/8"	.19"	2 1/4"	2"
12X	6.00	12'	1"	.17"	2 3/4"	2"
12XX	7.00	12'	1 1/8"	.18"	3"	2 1/4"
12XXX	8.50	12'	1 1/4"	.25"	3 1/4"	3"

The standard lengths, as given above, include the length of one hanger bearing. Prices are for regular strength of pipe shaft and include one hanger and one coupling for each standard length, but no lining. If extra heavy hollow shaft or solid shaft is wanted, we will quote special prices upon request.



Cut-Flight Conveyor

This conveyor is very extensively and successfully used in connection with perforated lining in removing sand, dirt and grit from cotton seed, as well as other materials.



Cut-Flight Conveyor

WITH MIXING PADDLES

Where it is desired to thoroughly mix material while passing through a comparatively short length of conveyor, the cut-flight conveyor, with mixing paddles, shown above, will be found better adapted than either the plain conveyor with paddles or the cut-flight conveyor alone.



Cut and Folded Flight Conveyor

This shows a form of Cut-Flight Conveyor, which acts well as mixer or dryer, and is suited for mixing fertilizer material.



Conveyor With Mixing Paddles

To mix thoroughly in transit several kinds of material, or several grades of the same material, we sometimes use a regular Conveyor with mixing paddles inserted.

By setting these paddles in opposite direction to the pitch of conveyor flights the material is thrown back. The combined action of the flights and paddles mixes the material.



Ribbon Conveyor

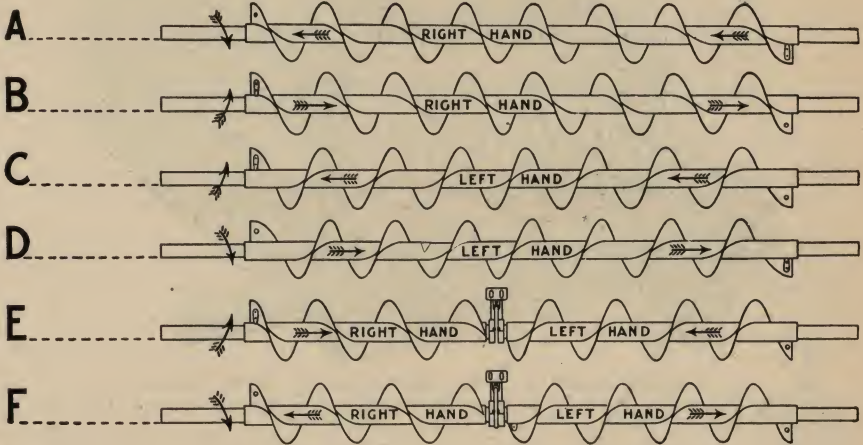
The conveyor shown above has been found especially adapted to handling sticky materials, such as molasses, hot tar, asphalt and material in the process of beet sugar manufacture.

This class of material is apt to collect on the flight of an ordinary conveyor where the flight joins the pipe. With ribbon conveyors the clear space prevents this.

Prices on application.

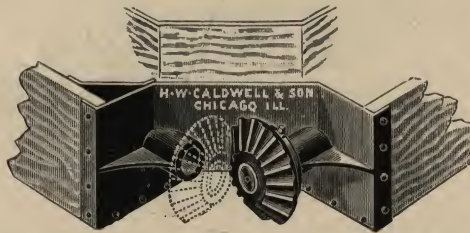
Directions For Ordering Conveyor

The arrows indicate which way conveyor turns, and which way material is carried. In ordering state whether right or left hand conveyor is wanted, and give length and diameter of driving ends.



Dimensions and Prices of Wood Boxes For Spiral Steel Conveyor

Diameter of Conveyor.....	4"	6"	9"	12"	16"	18"
Inside Dimensions { Width	5"	7"	10"	13"	17"	19"
{ Depth	6"	7 3/4"	11"	15 1/4"	19"	20"
Thickness of Lumber.....	3/4"	1"	1 1/4"	1 3/4"	1 3/4"	1 3/4"
Price per foot without cover .....	.40	.60	.75	.90	1.40	1.60
Price per foot with cover .....	.50	.80	1.00	1.20	1.85	2.10



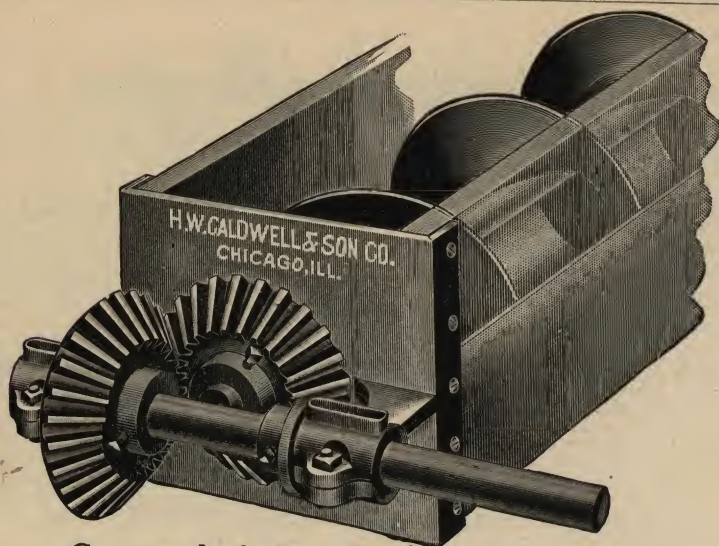
Miter Gear Bearing Ends For Right Angle Conveyors

When it is necessary that both lines of right angle conveyor should be on the same level, we recommend our miter gear bearings.

Prices include gears and driving ends.

PRICE LIST

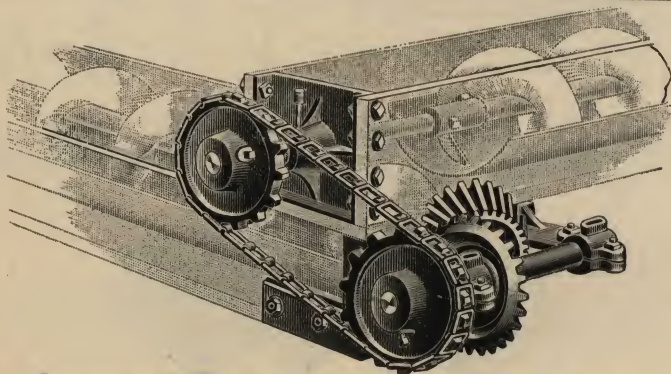
For 6" Conveyor.....	10.50
For 9" Conveyor.....	15.00
For 12" Conveyor.....	34.00
For 16" Conveyor.....	56.00



Countershaft Box Ends For Conveyor

Including the cast iron box end, necessary drive end projection for the conveyor, gears and short countershaft projecting far enough to take sprocket wheel or pulley.

Diameter of Conveyor	Diameter of Drive End	Price	Diameter of Conveyor	Diameter of Drive End	Price
4	1	9.00	12	3	42.00
6	1½	15.75	14	2	36.00
8	1½	18.75	14	2½	44.00
9	1½	18.75	14	3	50.00
9	2	21.75	16	2	60.00
10	1½	24.00	16	2½	66.00
10	2	27.00	16	3	70.00
12	2	32.00	18	3	82.00
12	2½	37.50			



Improved Right Angle Conveyor Drive

A desirable arrangement for driving conveyors at right angles; it allows the delivering conveyor to carry its full capacity and drop the material into the receiving conveyor without any danger of clogging or choking. The delivering conveyor should be placed a few inches higher than the box for the receiving conveyor.

Diameter of Conveyor	Diameter of Drive End	Price	Diameter of Conveyor	Diameter of Drive End	Price
4	1	18.00	12	3	58.00
6	1½	25.00	14	2	63.00
8	1½	28.50	14	2½	70.00
9	1½	28.50	14	3	80.00
9	2	32.00	16	2	86.00
10	1½	35.00	16	2½	90.00
10	2	37.00	16	3	96.00
12	2	48.00	18	3	125.00
12	2½	52.00			



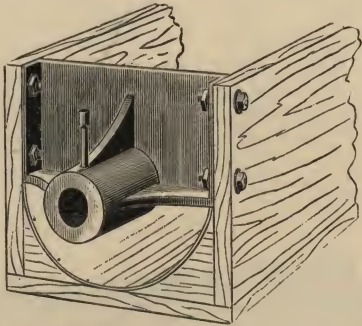
Solid



Split

Cast Iron Ends For Conveyor Boxes

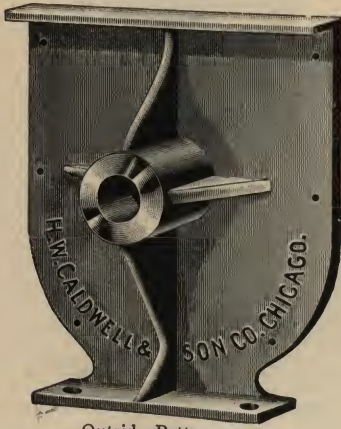
Diameter of Conveyor	Diameter of Shaft	Price of Plain Ends for Wood Box		Price of Split Ends for Wood Box	
		Black	Galvanized	Black	Galvanized
4	1	2.00	2.50		
6	1½	3.00	4.00	5.00	6.25
8	1½	4.25	5.50	5.50	7.00
9	1½	4.50	6.25	7.00	9.00
9	2	5.00	7.00	7.50	9.75
10	1½	5.50	8.00	8.00	10.25
10	2	6.00	8.50	8.50	11.00
12	2	8.00	10.75	11.00	14.25
12	2 7⁄8	9.00	12.00	13.75	17.75
12	3	10.00	13.50	14.75	19.00
14	2	10.50	13.75	14.00	18.75
14	2 7⁄8	11.50	14.75	15.00	20.00
14	3	12.50	16.25	16.00	21.00
16	2	13.00	17.25	16.50	22.50
16	2 7⁄8	13.50	17.75	17.00	23.00
16	3	14.00	18.50	17.50	23.50
18	3	17.00	23.00	22.00	28.75



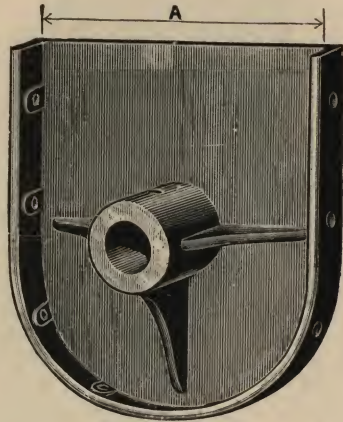
Iron Discharge Ends For Conveyor Boxes

Where it is desired to deliver the material at the end of the conveyor box without cutting a delivery opening in the bottom of the box, we recommend the use of the above special box end.

Diameter of Conveyor	Diameter of Shaft	Steel Box Price for Wood or		Diameter of Conveyor	Diameter of Shaft	Price for Wood or Steel Box	
		Black	Galvanized			Black	Galvanized
4	1	1.75	2.10	12	3	9.00	11.25
6	1½	2.75	3.40	14	2	9.50	12.25
8	1½	3.80	4.60	14	2 7⁄8	10.00	12.75
9	1½	4.00	5.00	14	3	10.50	13.50
9	2	4.50	5.85	16	2	11.50	15.00
10	1½	5.00	6.50	16	2 7⁄8	12.00	15.75
10	2	5.50	7.15	16	3	12.50	16.50
12	2	7.00	9.00	18	3	15.00	19.00
12	2 7⁄8	8.00	10.00				



Outside Pattern



Inside Pattern

Cast Iron Ends For Steel Conveyor Boxes

Diameter of Conveyor	Diameter of Shaft	Price of Plain Ends for Steel Box		Price of Split Ends for Steel Box	
		Black	Galvanized	Black	Galvanized
4	1	2.00	2.50		
6	1½	3.00	4.00	5.00	6.25
8	1½	4.25	5.50	5.50	7.00
9	1½	4.50	6.25	7.00	9.00
9	2	5.00	7.00	7.50	9.75
10	1½	5.50	8.00	8.00	10.25
10	2	6.00	8.50	8.50	11.00
12	2	8.00	10.75	11.00	14.25
12	2½	9.00	12.00	13.75	17.75
12	3	10.00	13.50	14.75	19.00
14	2	10.50	13.75	14.00	18.75
14	2½	11.50	14.75	15.00	20.00
14	3	12.50	16.25	16.00	21.00
16	2	13.00	17.25	16.50	22.50
16	2½	13.50	17.75	17.00	23.00
16	3	14.00	18.50	17.50	23.50
18	3	17.00	23.00	22.00	28.75



Cast Iron Conveyor Boxes

Where a steel conveyor box will rust out or be corroded by chemicals, a cast iron conveyor box will be found more durable. These boxes are made up in short sections with flanges at the ends, these flanges being bolted together and forming a continuous box.

PRICES ON APPLICATION.



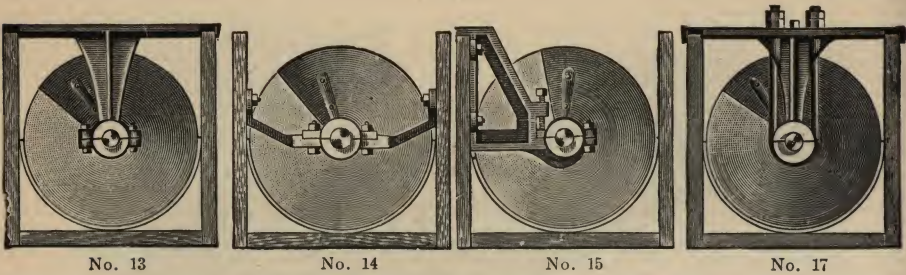
Steel Conveyor Boxes

The above represents a section of steel conveyor box. Where damp materials are to be handled, the conveyor boxes should be galvanized. Such galvanized boxes are regularly furnished with black hangers and box ends, unless specially ordered to the contrary.

Prices are for plain boxes without box ends, gates or openings. If these are needed, an extra charge is made. Prices below are for black steel.

Diameter of Conveyor	Gauge of Metal in Box	Price per Foot with Standard Cover	Weight per Foot with Standard Cover	Price of Covers				
				Gauge of Metal in Covers				
				No. 18	No. 16	No. 14	No. 12	No. 10
6	16	2.25	10½	.35	.40	.50	-----	-----
6	14	2.40	13					
6	12	2.50	14					
6	10	2.70	15½					
9	16	2.80	15½	.45	.50	.55	-----	-----
9	14	3.00	17					
9	12	3.30	20					
9	10	3.60	23					
12	14	3.60	23	-----	.60	.65	.80	.90
12	12	4.05	26					
12	10	4.50	31					
12	¾	5.70	40					
14	14	4.35	26	-----	.65	.70	.85	.95
14	12	4.65	30					
14	10	5.10	35					
14	¾	6.00	42					
16	14	4.50	29	-----	.70	.75	1.00	1.15
16	12	4.95	34					
16	10	5.60	39					
16	¾	6.45	47					
16	¾	7.20	53					
18	12	5.40	38	-----		.80	1.10	1.25
18	10	6.00	43					
18	¾	7.05	52					
18	¾	7.80	65					

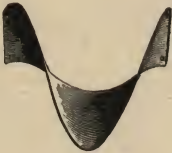
Prices in heavy type are for regular conveyor boxes and covers, the gauge of box being opposite the price. When heavier covers than regular are required, deduct the price of cover in heavy face type and add the price for gauge of cover desired.



Standard Spiral Conveyor Hangers

Diameter of Conveyor	Diameter of Coupling	Width of Bearing	No. 13 Solid	No. 13 Split	No. 14	No. 15	No. 17
3"	$\frac{3}{4}$	$1\frac{1}{2}$	.40	-----	-----	-----	-----
4"	1	$1\frac{1}{2}$	.49	-----	-----	-----	-----
5"	$1\frac{1}{2}$	2	.60	-----	.75	-----	-----
6"	$1\frac{1}{2}$	2	.60	.75	.75	.75	1.20
7"	$1\frac{1}{2}$	2	1.00	-----	-----	-----	-----
8"	$1\frac{1}{2}$	2	-----	1.00	-----	-----	1.50
9"	$1\frac{1}{2}$	2	-----	1.00	1.40	1.40	1.50
10"	2	2	-----	1.40	1.60	1.60	1.80
10"	$1\frac{1}{2}$	2	-----	1.40	1.60	1.60	1.90
10"	2	2	-----	1.60	1.80	1.80	2.20
12"	2	2	-----	1.80	2.00	2.00	2.20
12"	$2\frac{7}{8}$	3	-----	2.50	2.50	-----	2.95
12"	3	3	-----	2.70	2.70	-----	3.45
14"	2	2	-----	3.00	3.00	-----	3.20
14"	$2\frac{7}{8}$	3	-----	3.40	3.40	-----	3.60
14"	3	3	-----	4.00	4.00	-----	4.00
16"	2	2	-----	3.80	3.80	-----	3.80
16"	$2\frac{7}{8}$	3	-----	4.15	4.15	-----	4.20
16"	3	3	-----	4.50	4.50	-----	4.50
18"	3	3	-----	5.50	5.50	-----	5.50

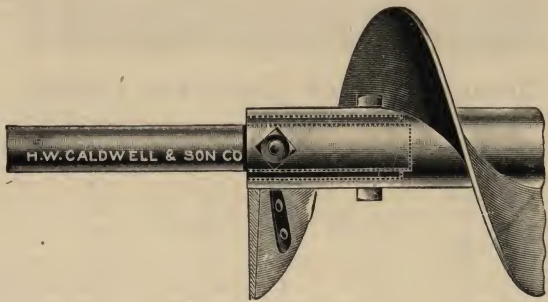
No. 13 is the style regularly furnished with spiral steel conveyor.



Spiral Steel Conveyor Flights

Diameter of Conveyor	Standard	Thickness of Flight					
		$\frac{3}{8}$ inch	$\frac{7}{8}$ inch	$\frac{1}{2}$ inch	$\frac{7}{8}$ inch	$\frac{3}{4}$ inch	$\frac{1}{2}$ inch
3"	.20	.30	-----	-----	-----	-----	-----
4"	.20	.30	.50	.75	-----	-----	-----
5"	.30	.40	-----	-----	-----	-----	-----
6"	.30	.40	.60	1.00	-----	1.50	-----
7"	.45	.65	1.00	-----	-----	-----	-----
8"	.45	.65	1.00	1.50	-----	-----	-----
9"	.45	.65	1.00	1.50	2.00	2.50	3.75
10"	.75	1.00	1.50	2.20	2.80	3.25	4.50
12"	.75	-----	1.50	2.20	2.80	3.25	4.50
14"	1.00	-----	2.25	3.50	4.50	5.25	6.50
16"	1.35	-----	3.25	4.00	5.00	5.75	7.50
18"	2.25	-----	3.50	5.25	6.00	7.70	10.00

The space covered by a flight is approximately the same as the diameter of the conveyor.
In ordering flights, be particular to state the pitch of screw, inside or outside diameter of pipe, and whether right or left hand.
In ordering flights, in case any are wanted for the end of the section of conveyor, it should be so specified, as such end flights have proper space cut out to go over the end collar on the pipe.

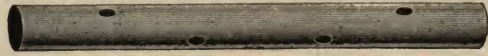


Standard Conveyor Driving Ends

The exact standard diameters of Driving Ends are as follows:

Diameter of Conveyor,	4 in.	6 in.	9 in.	12 in.	16 on 2 in.	16 on 3 in.	18 in.
Diameter of Drive End,	1 in.	1½ in.	1½ in.	2 in.	2 in.	3 in.	3 in.

Projection from Pipe, Inches	Diameter, 1 Inch	Diameter, 1½ Inch	Diameter, 2 Inches	Diameter, 2½ Inches	Diameter, 3 Inches
6	.50	.83	1.40	1.87	2.54
8	.66	1.11	1.86	2.50	3.38
10	.83	1.39	2.33	3.12	4.23
12	1.00	1.65	2.75	3.75	5.05
14	1.10	1.80	3.00	4.10	5.60
16	1.20	1.95	3.25	4.45	6.15
18	1.30	2.10	3.50	4.80	6.70
20	1.40	2.25	3.75	5.15	7.25
22	1.50	2.40	4.00	5.50	7.80
24	1.60	2.55	4.25	5.85	8.35
26	1.70	2.70	4.50	6.20	8.90
28	1.80	2.85	4.75	6.55	9.45
30	1.90	3.00	5.00	6.90	10.00
32	2.00	3.15	5.25	7.25	10.55
34	2.10	3.30	5.50	7.60	11.10
36	2.20	3.45	5.75	7.95	11.65
42	2.50	3.90	6.50	9.00	13.30
48	2.80	4.35	7.25	10.05	14.95



Standard Conveyor Couplings

Diameter of Conveyor in Inches	Diameter of Coupling	Price
3	3	.30
4	1	.50
5-6-7-8-9-10	1½	.75
9-10-12-14-16	2	1.50
12-14-16	2½	2.00
12-14-16-18	3	2.50



Standard Spiral Conveyor Lining

Diameter of Conveyors, Inches	Price per Lineal Foot	Gauge of Steel	Width of Sheet, Inches	Standard Length of Sheet, Inches
4	.08	22	8½	30
6	.10	22	11½	30
8	.16	20	16	30
9	.16	20	16	30
10	.19	20	18	30
12	.20	20	20	30
14	.34	18	24	30
16	.36	18	27	30
18	.49	18	36	30

Extra Heavy Spiral Conveyor Lining

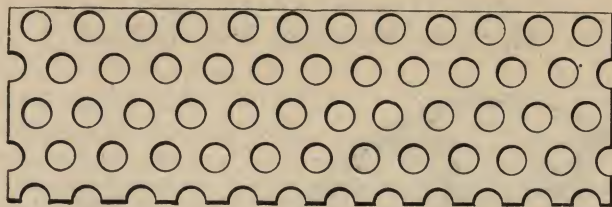
Diam. of Conveyor, Inches	Width of Sheet, Inches	Gauge of Steel							
		20	18	16	14	12	10	8	½
4	8½	.10	.13	.18	---	---	---	---	---
4	10	.11	.14	.21	---	---	---	---	---
6	11½	.13	.16	.22	.29	---	---	---	---
6	14	.14	.19	.27	.32	---	---	---	---
8	16	---	.22	.27	.35	.51	---	---	---
9	16	---	.22	.27	.35	.51	---	---	---
9	18	---	.26	.30	.40	.56	---	---	---
10	18	---	.26	.30	.40	.56	---	---	---
8	20	---	.27	.35	.43	.64	.80	---	---
9	20	---	.27	.35	.43	.64	.80	---	---
10	20	---	.27	.35	.43	.64	.80	---	---
12	20	---	.27	.35	.43	.64	.80	---	---
10	24	---	---	.42	.51	.75	.95	---	---
12	24	---	---	.42	.51	.75	.95	---	---
14	24	---	---	.42	.51	.75	.95	---	---
14	27	---	---	.46	.58	.80	1.10	---	---
16	27	---	---	.46	.58	.80	1.10	1.35	1.50
16	30	---	---	.51	.64	.90	1.20	1.50	1.75
16	36	---	---	.61	.77	1.10	1.50	1.85	2.10
18	36	---	---	.61	.77	1.10	1.50	1.85	2.10
16	42	---	---	---	.90	1.30	1.70	2.15	2.40
18	42	---	---	---	.90	1.30	1.70	2.15	2.40
16	48	---	---	---	1.00	1.45	1.90	2.50	2.70



Standard Perforated Conveyor Lining

Diameter of Conveyor	Price per Lineal Foot	Gauge of Steel	Width of Sheet	Standard Length of Sheet	Diameter of Perforations
6"	.45	18	12"	30"	1/8"
6"	.45	18	12"	30"	3/16"
6"	.45	18	12"	30"	1/4"
6"	.45	18	12"	30"	5/16"
9"	.65	18	18"	30"	1/8"
9"	.65	18	18"	30"	3/16"
9"	.65	18	18"	30"	1/4"
9"	.65	18	18"	30"	5/16"
10"	.75	18	20"	30"	1/8"
10"	.75	18	20"	30"	3/16"
12"	.85	18	24"	30"	1/8"
12"	.85	18	24"	30"	3/16"
12"	.85	18	24"	30"	1/4"
12"	.85	18	24"	30"	5/16"

List prices as shown above are for perforated linings strictly in accordance with specifications shown in above table. If gauge of steel, width of sheet or diameter of perforations are changed from above, special prices will be quoted.

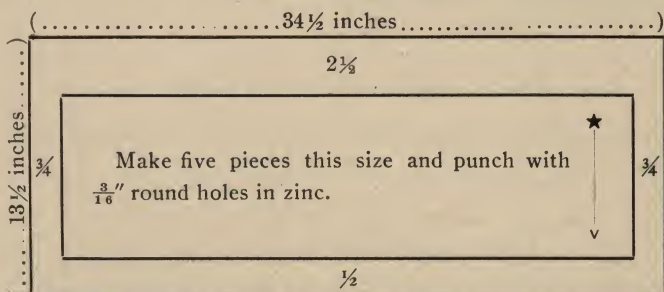


Perforated Metal

In ordering, please comply with the following instructions:

- 1st. Make a small diagram of each size sheet.
- 2nd. Mark on each diagram the length and width in inches, the width of the blank margin, and the exact size of the holes.
- 3d. State whether the hole is round or otherwise, and if it is a slot, oval or oblong, show which way of the sheet you wish the perforations to run.
- 4th. Give the number of pieces you wish of each size.
- 5th. Mark on each diagram, with an arrow, which way the grain passes over the sieve.
- 6th. State the kind of metal wanted.

Sample Diagram



In furnishing perforated sheet metal for use on the shakers of grain cleaning machines, such as Scourers, Separators, Corn Cleaners, etc., we always use No. 10 Zinc or No. 26 sheet steel, unless otherwise specified. The list price per square foot is as follows:

No. 9 Zinc with perforations 10-64ths and larger	.35
No. 10 Zinc with perforations 10-64ths and larger	.40
No. 12 Zinc with perforations 10-64ths and larger	.50
No. 14 Zinc with perforations 10-64ths and larger	.60
No. 9 Zinc with perforations 9-64ths and smaller	.40
No. 10 Zinc with perforations 9-64ths and smaller	.45
No. 12 Zinc with perforations 9-64ths and smaller	.55
No. 14 Zinc with perforations 9-64ths and smaller	.65
No. 26 sheet steel, perforations 10-64ths and larger	.35
No. 24 sheet steel, perforations 10-64ths and larger	.40
No. 22 sheet steel, perforations 10-64ths and larger	.45
No. 20 sheet steel, perforations 10-64ths and larger	.50
No. 18 sheet steel, perforations 10-64ths and larger	.55
No. 16 sheet steel, perforations 10-64ths and larger	.60
No. 14 sheet steel, perforations 10-64ths and larger	.65
No. 26 sheet steel, perforations 9-64ths and smaller	.40
No. 24 sheet steel, perforations 9-64ths and smaller	.45
Cornwall finger strips per lineal foot	.12

Machine Moulded Iron Pulleys



Our pulleys are all turned and bored in the lathe, are balanced, painted and provided with set-screws or key-seats as may be desired. When both set-screws and key-seats are wanted, the key-seats and keys will be charged for extra.

Pulleys with bores disproportionate to their diameters or with special hubs, are subject to extra charges.

For non-shifting belts, pulleys should have crowning faces.

For Shifting Belts, the driving pulleys should have straight faces.

Tight and Loose Pulleys should have crowning faces.

Intermediate widths of face at next highest price. Double Arm Double Belt Pulleys of any face.

Pulleys made of any diameter above 60 inches, by inches, and of any face, at price of next larger diameter pulley listed.

In ordering, state diameter, width of face and size of bore. Specify whether straight or crowning face, single or double belt, and whether with set screw or key-seat.

When orders are received for pulleys, and no description given, crowning faces will be sent.

At the end of the Pulley List are to be found the additional prices to be added to the List Price for Tight and Loose Pulleys, Flanged Pulleys, and extra large bores.



Machine Moulded Pulleys

BORED, TURNED AND BALANCED, WITH SET SCREWS OR KEY SEATS

Diameter, Inches	SOLID				SPLIT				Diameter, Inches	SOLID				SPLIT			
	Face, Inches	Single Belt	Double Belt	Double Arm, Double Belt	Single Belt	Double Belt	Double Arm, Double Belt	Double Belt		Face, Inches	Single Belt	Double Belt	Double Arm, Double Belt	Single Belt	Double Belt	Double Arm, Double Belt	
6 Largest Bore at 2 1/16" Regular Price 1 1/8"	3	2.20	2.50		3.70	4.00			12 Largest Bore at 2 1/16" Regular Price 2 1/16"	3	3.60	3.95		5.40	5.75		
	4	2.50	2.80		4.00	4.30				4	4.05	4.55		5.85	6.40		
	5	2.85	3.15		4.60	4.90				5	4.55	5.15		6.75	7.35		
	6	3.20	3.60		4.95	5.35				6	5.10	5.80		7.30	8.00		
	7	3.60	4.10		5.60	6.10				7	5.70	6.45		8.30	9.05		
	8	4.05	4.55		6.05	6.55				8	6.30	7.15		8.90	9.75		
	9		5.05			7.35				9		7.85			10.90		
	10		5.55			7.85				10		8.60			11.65		
	11		6.05			8.65				11		9.35			12.85		
	12		6.55			9.15				12		10.15			13.65		
										13		10.95			14.95		
										14		11.75			15.75		
								15		12.60			17.10				
7 Largest Bore at 1 15/16" Regular Price 1 1/8"	3	2.40	2.70		3.90	4.20			13 Largest Bore at 2 1/16" Regular Price 2 1/16"	3	3.65	4.20		5.45	6.00		
	4	2.75	3.05		4.25	4.55				4	4.35	4.85		6.15	6.65		
	5	3.10	3.50		4.85	5.25				5	4.90	5.50		7.10	7.70		
	6	3.50	3.95		5.25	5.70				6	5.50	6.20		7.70	8.40		
	7	3.95	4.40		5.95	6.40				7	6.10	6.90		8.70	9.50		
	8	4.40	4.90		6.40	6.90				8	6.75	7.65		9.35	10.25		
	9		5.35			7.65				9	7.45	8.40		10.50	11.45		
	10		5.85			8.15				10		9.20			12.25		
	11		6.35			8.95				11		10.00			13.50		
	12		6.85			9.50				12		10.85			14.35		
										13		11.70			15.70		
										14		12.60			16.60		
								15		13.50			18.00				
8 Largest Bore at 1 15/16" Regular Price 1 1/8"	3	2.65	2.90		4.25	4.50			14 Largest Bore at 2 1/16" Regular Price 2 1/16"	3	4.05	4.50		6.00	6.45		
	4	3.00	3.35		4.60	4.95				4	4.65	5.20		6.60	7.15		
	5	3.40	3.80		5.30	5.70				5	5.10	5.95		7.50	8.35		
	6	3.80	4.25		5.70	6.15				6	5.75	6.70		8.15	9.10		
	7	4.25	4.75		6.45	6.95				7	6.45	7.50		9.30	10.35		
	8	4.75	5.25		6.95	7.45				8	7.20	8.30		10.05	11.15		
	9		5.80			8.35				9	7.95	9.10		11.30	12.45		
	10		6.35			8.90				10		9.95			13.30		
	11		6.95			9.85				11		10.80			14.65		
	12		7.60			10.50				12		11.70			15.55		
	13		8.30			11.60				13		12.60			17.00		
										14		13.50			17.90		
								15		14.45			19.40				
9 Largest Bore at 1 15/16" Regular Price 1 1/8"	3	2.90	3.20		4.50	4.80			15 Largest Bore at 2 1/16" Regular Price 2 1/16"	3	4.35	4.80		6.30	6.75		
	4	3.25	3.65		4.85	5.25				4	4.85	5.55		6.80	7.50		
	5	3.65	4.15		5.55	6.05				5	5.65	6.35		8.05	8.75		
	6	4.10	4.65		6.00	6.55				6	6.10	7.15		8.50	9.55		
	7	4.60	5.20		6.80	7.40				7	6.85	8.00		9.70	10.85		
	8	5.10	5.75		7.30	7.95				8	7.10	8.85		9.95	11.70		
	9		6.30			8.85				9	8.60	9.75		11.95	13.10		
	10		6.90			9.45				10		10.65			14.00		
	11		7.50			10.40				11		11.60			15.45		
	12		8.15			11.05				12		12.55			16.40		
	13		8.85			12.15				13		13.50			17.90		
										14		14.50			18.90		
								15		15.50			20.45				
10 Largest Bore at 2 1/16" Regular Price 2 1/16"	3	3.10	3.45		4.80	5.15			16 Largest Bore at 2 1/16" Regular Price 2 1/16"	3	4.65	5.10		6.75	7.20		
	4	3.50	3.95		5.20	5.65				4	5.20	5.80		7.30	7.90		
	5	3.95	4.45		6.00	6.50				5	5.80	6.60		8.40	9.20		
	6	4.40	5.00		6.45	7.05				6	6.50	7.45		9.10	10.05		
	7	4.90	5.55		7.30	7.95				7	7.30	8.50		10.40	11.60		
	8	5.45	6.15		7.85	8.55				8	8.20	9.20		11.30	12.30		
	9		6.80			9.60				9	9.20	10.10		12.85	13.75		
	10		7.50			10.30				10		11.05			14.70		
	11		8.20			11.40				11		12.00			16.20		
	12		8.95			12.15				12		13.00			17.20		
	13		9.70			13.35				13		14.00			18.80		
										14		15.00			19.80		
								15		16.05			21.45				
								16		17.20			22.65				
								17		18.20			24.25				
11 Largest Bore at 2 1/16" Regular Price 2 1/16"	3	3.30	3.70		5.00	5.40			17 Largest Bore at 2 1/16" Regular Price 2 1/16"	3	4.65	5.10		6.75	7.20		
	4	3.75	4.25		5.45	5.95				4	5.20	5.80		7.30	7.90		
	5	4.20	4.80		6.25	6.85				5	5.80	6.60		8.40	9.20		
	6	4.70	5.40		6.75	7.65				6	6.50	7.45		9.10	10.05		
	7	5.25	6.00		7.65	8.40				7	7.30	8.50		10.40	11.60		
	8	5.85	6.65		8.25	9.05				8	8.20	9.20		11.30	12.30		
	9		7.30			10.10				9	9.20	10.10		12.85	13.75		
	10		8.00			10.80				10		11.05			14.70		
	11		8.75			11.95				11		12.00			16.20		
	12		9.55			12.75				12		13.00			17.20		
	13		10.40			14.05				13		14.00			18.80		
										14		15.00			19.80		
								15		16.05			21.45				
								16		17.20			22.65				
								17		18.20			24.25				

Machine Moulded Pulleys—Continued

Diameter, Inches	SOLID				SPLIT			Diameter, Inches	SOLID				SPLIT		
	Face, Inches	Single Belt	Double Belt	Double Arm, Double Belt	Single Belt	Double Belt	Double Arm, Double Belt		Face, Inches	Single Belt	Double Belt	Double Arm, Double Belt	Single Belt	Double Belt	Double Arm, Double Belt
17 Largest Bore at $2\frac{1}{16}$ " Regular Price	3	4.90	5.40	-----	7.00	7.50	-----	21 Largest Bore at $3\frac{1}{16}$ " Regular Price	3	6.05	6.75	-----	8.50	9.20	-----
	4	5.50	6.25	-----	7.60	8.35	-----		4	7.00	7.85	-----	9.45	10.30	-----
	5	6.25	7.10	-----	8.35	9.70	-----		5	8.00	9.00	-----	11.05	12.05	-----
	6	7.00	8.00	-----	9.60	10.60	-----		6	9.00	10.15	-----	12.05	13.20	-----
	7	7.85	8.90	-----	10.95	12.00	-----		7	10.00	11.35	-----	13.65	15.00	-----
	8	8.75	9.85	-----	11.95	12.95	-----		8	11.00	12.55	-----	14.65	16.20	-----
	9	9.75	10.80	-----	13.40	14.45	-----		9	12.10	13.80	-----	16.40	18.10	-----
	10	-----	11.80	-----	-----	15.50	-----		10	13.25	15.05	-----	17.55	19.35	-----
	11	-----	12.80	-----	-----	17.00	-----		11	-----	16.35	-----	-----	21.30	-----
	12	-----	13.85	-----	-----	18.05	-----		12	-----	17.65	-----	-----	22.60	-----
	13	-----	14.90	-----	-----	18.70	-----		13	-----	19.00	-----	-----	24.65	-----
	14	-----	16.00	-----	-----	20.80	-----		14	-----	20.35	-----	-----	26.00	-----
	15	-----	17.10	-----	-----	22.50	-----		15	-----	21.75	-----	-----	28.10	-----
	16	-----	18.25	-----	-----	23.65	-----		16	-----	23.15	-----	-----	29.60	-----
	17	-----	19.40	-----	-----	25.45	-----		17	-----	24.60	-----	-----	31.70	-----
18 Largest Bore at $2\frac{1}{16}$ " Regular Price	3	5.20	5.70	-----	7.45	7.95	-----		18	-----	26.05	-----	-----	33.15	-----
	4	5.35	6.65	-----	7.60	8.90	-----		19	-----	27.55	-----	-----	35.40	-----
	5	6.60	7.60	-----	9.40	10.40	-----		20	-----	-----	33.10	-----	-----	40.95
	6	7.40	8.55	-----	10.20	11.35	-----		22	-----	-----	35.95	-----	-----	44.60
	7	8.30	9.55	-----	11.70	12.90	-----		24	-----	-----	38.85	-----	-----	48.30
	8	9.30	10.55	-----	12.65	13.90	-----		26	-----	-----	41.90	-----	-----	42.20
	9	10.40	11.60	-----	14.35	15.55	-----		28	-----	-----	44.90	-----	-----	56.05
	10	-----	12.65	-----	-----	16.60	-----	22 Largest Bore at $3\frac{1}{16}$ " Regular Price	3	6.35	7.10	-----	9.00	9.75	-----
	11	-----	13.75	-----	-----	18.30	-----		4	7.40	8.30	-----	10.05	10.95	-----
	12	-----	14.85	-----	-----	19.40	-----		5	8.45	9.50	-----	11.75	12.80	-----
	13	-----	15.90	-----	-----	21.10	-----		6	9.50	10.75	-----	12.80	14.05	-----
	14	-----	17.05	-----	-----	22.25	-----		7	10.55	12.00	-----	14.50	15.95	-----
	15	-----	18.25	-----	-----	24.10	-----		8	11.55	13.30	-----	15.50	17.25	-----
	16	-----	19.45	-----	-----	25.30	-----		9	12.65	14.60	-----	17.30	19.25	-----
	17	-----	20.70	-----	-----	27.25	-----		10	13.85	15.95	-----	18.50	20.60	-----
19 Largest Bore at $2\frac{1}{16}$ " Regular Price	3	5.45	6.05	-----	7.70	8.30	-----		11	-----	17.30	-----	-----	22.65	-----
	4	6.25	7.05	-----	8.50	9.30	-----		12	-----	18.70	-----	-----	24.05	-----
	5	7.05	8.10	-----	9.85	10.95	-----		13	-----	20.10	-----	-----	26.20	-----
	6	7.90	9.15	-----	10.70	11.95	-----		14	-----	21.55	-----	-----	27.65	-----
	7	8.85	10.25	-----	12.20	13.60	-----		15	-----	23.00	-----	-----	29.85	-----
	8	9.85	11.35	-----	13.20	14.70	-----		16	-----	24.50	-----	-----	31.35	-----
	9	10.95	12.40	-----	14.90	16.35	-----		17	-----	26.00	-----	-----	33.65	-----
	10	-----	13.55	-----	-----	17.50	-----		18	-----	27.55	-----	-----	35.20	-----
	11	-----	14.70	-----	-----	19.25	-----		19	-----	29.10	-----	-----	37.55	-----
	12	-----	15.90	-----	-----	20.45	-----		20	-----	30.70	-----	35.10	39.15	-----
	13	-----	17.10	-----	-----	22.30	-----		21	-----	32.35	-----	-----	41.65	-----
	14	-----	18.35	-----	-----	23.65	-----		22	-----	-----	38.05	-----	-----	47.35
	15	-----	19.60	-----	-----	25.45	-----		24	-----	-----	41.15	-----	-----	51.30
	16	-----	20.90	-----	-----	26.75	-----		26	-----	-----	44.25	-----	-----	55.30
	17	-----	22.20	-----	-----	28.75	-----		28	-----	-----	47.40	-----	-----	59.35
	18	-----	23.55	-----	-----	30.10	-----		30	-----	-----	50.60	-----	-----	63.50
	19	-----	24.90	-----	-----	32.15	-----	23 Largest Bore at $3\frac{1}{16}$ " Regular Price	3	6.70	7.50	-----	9.35	10.15	-----
20 Largest Bore at $2\frac{1}{16}$ " Regular Price	3	5.75	6.40	-----	8.20	8.85	-----		4	7.80	8.75	-----	10.45	11.40	-----
	4	6.65	7.45	-----	9.10	9.90	-----		5	8.90	10.05	-----	12.20	13.35	-----
	5	7.55	8.55	-----	10.60	11.60	-----		6	10.00	11.35	-----	13.30	14.65	-----
	6	8.50	9.65	-----	11.55	12.70	-----		7	11.10	12.70	-----	15.05	16.65	-----
	7	9.45	10.80	-----	13.10	14.45	-----		8	12.15	14.05	-----	16.10	18.00	-----
	8	10.45	11.95	-----	14.10	15.60	-----		9	13.30	15.45	-----	17.95	20.10	-----
	9	11.55	13.15	-----	15.85	17.45	-----		10	14.45	16.85	-----	19.10	21.60	-----
	10	-----	14.35	-----	17.00	18.65	-----		11	-----	18.30	-----	-----	23.65	-----
	11	-----	15.60	-----	-----	20.55	-----		12	-----	19.75	-----	-----	25.10	-----
	12	-----	16.85	-----	-----	21.80	-----		13	-----	21.25	-----	-----	27.85	-----
	13	-----	18.15	-----	-----	23.80	-----		14	-----	22.75	-----	-----	28.85	-----
	14	-----	19.45	-----	-----	25.10	-----		15	-----	24.30	-----	-----	31.15	-----
	15	-----	20.80	-----	-----	27.15	-----		16	-----	25.85	-----	-----	32.70	-----
	16	-----	22.15	-----	-----	28.50	-----		17	-----	27.45	-----	-----	35.10	-----
	17	-----	23.55	-----	-----	30.65	-----		18	-----	29.05	-----	-----	36.70	-----
	18	-----	24.95	-----	-----	32.05	-----		19	-----	30.70	-----	-----	39.15	-----
	19	-----	26.40	-----	-----	34.25	-----		20	-----	32.35	-----	37.10	40.80	45.55
	20	-----	-----	31.60	-----	-----	39.45		21	-----	34.05	-----	-----	43.35	-----
	22	-----	-----	34.35	-----	-----	43.00		22	-----	-----	40.25	-----	-----	49.55
	24	-----	-----	37.15	-----	-----	46.60		24	-----	-----	43.45	-----	-----	53.60
	26	-----	-----	40.00	-----	-----	50.30		26	-----	-----	46.70	-----	-----	57.75
	28	-----	-----	42.90	-----	-----	54.05								

Machine Moulded Pulleys—Continued

SOLID					SPLIT					SOLID					SPLIT				
Diameter, Inches	Face, Inches	Single Belt	Double Belt	Double Arm, Double Belt	Single Belt	Double Belt	Double Arm, Double Belt	Diameter, Inches	Face, Inches	Single Belt	Double Belt	Double Arm, Double Belt	Single Belt	Double Belt	Double Arm, Double Belt				
23	28			50.00			61.95	26	21		39.40			50.05					
	30			53.35			66.25		22		41.35		47.10		52.00	57.75			
	24	3	7.05	7.90		9.85	10.70		24				50.80			62.40			
		4	8.20	9.25		11.00	12.05		26				54.55			67.15			
		5	9.35	10.60		12.90	14.15		28				58.35			71.95			
		6	10.50	12.00		14.05	15.55		30				62.20			76.85			
		7	11.65	13.40		15.90	17.65		28	3	8.55	9.80		11.80	13.05				
		8	12.80	14.85		17.05	19.10			4	9.95	11.45		13.20	14.65				
		9	14.00	16.30		19.00	21.30			5	11.35	13.10		15.50	17.25				
		10	15.20	17.80		20.20	22.80			6	12.75	14.80		16.90	18.95				
11		19.30		25.05		7	14.15	16.50			19.10	21.45							
12		20.85		26.60		8	15.55	18.25			20.50	23.20							
13		22.40		28.95		9	17.00	20.00			22.80	25.80							
14		24.00		30.55		10	18.50	21.80			24.30	27.60							
Largest Bore at Regular Price	15		25.60		32.95		11		20.10		23.60		26.75	30.25					
	16		27.25		34.60		12		25.45				32.10						
	17		28.90		37.10		13		27.80				35.35						
	18		30.60		38.80		14		29.20				36.75						
	19		32.30		41.35		15		31.10				39.55						
	20		34.05	39.20	43.10	48.25	16		33.05				41.50						
	21		35.80		45.75		17		34.90				44.80						
	22			42.45		52.40	18		36.90				46.30						
	23			45.85		56.70	19		38.90				49.25						
	24			49.30		61.10	20		40.95		47.95		51.30	49.25					
25	25			52.80		65.55	21		43.00				53.85						
	26			56.35		70.10	22		45.10		51.90		56.45	63.25					
	27						23				56.00			68.35					
	28						24				60.05			73.45					
	29						25				64.25			78.70					
	30						26				68.45			84.00					
	31						27				72.70			89.35					
	Largest Bore at Regular Price	32						28											
		3	7.40	8.35		10.20	11.15	30	3	9.40	10.85		12.90	14.35					
		4	8.60	9.75		11.40	12.55		4	10.90	12.65		14.40	16.15					
5		9.80	11.20		13.35	14.75	5		12.45	14.45		16.90	18.90						
6		11.00	12.65		14.55	16.20	6		14.00	16.30		18.45	20.75						
7		12.20	14.15		16.45	18.40	7		15.85	18.15		21.15	23.45						
8		13.40	15.65		17.65	19.90	8		17.15	20.05		22.45	25.35						
9		14.65	17.20		19.65	22.20	9		18.75	21.95		24.95	28.15						
10		15.90	18.75		20.90	23.75	10		20.35	23.90		26.55	30.10						
11			20.35		26.10		11		22.00	25.85		29.10	32.95						
12		21.95		27.70		12			27.85			34.95							
Largest Bore at Regular Price	13		23.60		30.15		13		29.85			37.90							
	14		25.25		31.80		14		31.90			39.95							
	15		26.95		34.30		15		33.95			42.95							
	16		28.65		36.00		16		36.00			45.00							
	17		30.40		38.60		17		38.10			48.10							
	18		32.15		40.35		18		40.25			50.25							
	19		33.95		43.00		19		42.40			53.40							
	20		35.75	41.25	44.80	50.30	20		44.60	52.60		55.60	63.60						
	21		37.60		47.55		21		46.80			58.85							
	22		39.45	44.75	49.40	54.70	22		49.05		56.85	61.10	68.90						
26	23			48.30		59.15	23												
	24			51.90		63.70	24				61.25			74.35					
	25			55.55		68.30	25				65.65			79.85					
	26			59.25		73.00	26				70.15			85.45					
	27						27				74.70			91.15					
	28						28				79.25			96.85					
	29						29				83.90			102.70					
	30						30												
	Largest Bore at Regular Price	31						32	3	10.30	11.95		14.10	15.75					
		32							4	11.90	13.90		15.70	17.70					
3		7.75	8.80		10.75	11.80	5		13.55	15.85		18.35	20.65						
4		9.00	10.30		12.00	13.30	6		15.20	17.85		20.00	22.65						
5		10.25	11.80		14.10	15.65	7		16.90	19.85		22.60	25.55						
6		11.50	13.35		15.35	17.20	8		18.60	21.90		24.30	27.60						
7		12.75	14.90		17.35	19.50	9		20.35	23.95		27.00	30.60						
8		14.05	16.50		18.65	21.10	10		22.15	26.05		28.80	32.70						
9		15.35	19.10		20.75	23.50	11		24.00	28.15		31.60	35.75						
10		16.70	19.75		22.10	25.15													

Machine Moulded Pulleys—Continued

Diameter, Inches	SOLID				SPLIT			Diameter, Inches	SOLID				SPLIT		
	Face, Inches	Single Belt	Double Belt	Double Arm, Double Belt	Single Belt	Double Belt	Double Arm, Double Belt		Face, Inches	Single Belt	Double Belt	Double Arm, Double Belt	Single Belt	Double Belt	Double Arm, Double Belt
32 Largest Bore at $3\frac{1}{16}$ " Regular Price	12		30.30			37.90		38 Largest Bore at $3\frac{1}{16}$ " Regular Price	4	15.65	18.00		20.40	22.75	
	13		32.50			41.10			5	17.70	20.50		23.65	26.45	
	14		34.70			43.30			6	19.80	23.00		25.70	28.90	
	15		36.95			46.55			7	21.95	25.55		28.90	32.50	
	16		39.20			48.80			8	24.10	28.10		31.05	35.05	
	17		41.50			52.15			9	26.25	30.70		34.30	38.75	
	18		43.80			54.45			10	28.40	33.30		36.45	41.35	
	19		46.15			57.85			11	30.60	35.95		39.75	45.10	
	20		48.50	57.30		60.20	69.00		12	32.85	38.60		42.00	47.75	
	21		50.90			63.70			13		41.30			51.60	
	22		53.30	62.05		66.10	74.85		14		44.00			54.30	
	23		55.70			69.60			15		46.75			58.20	
34 Largest Bore at $3\frac{1}{8}$ " Regular Price	3	11.35	13.10		15.45	17.20		40 Largest Bore at $3\frac{1}{8}$ " Regular Price	16		49.50			60.95	
	4	12.95	15.20		17.05	19.30			17		52.30			64.95	
	5	14.70	17.30		19.85	22.45			18		55.10			67.75	
	6	16.50	19.45		21.65	24.60			19		57.95			70.80	
	7	18.40	21.60		24.50	27.70			20		60.80	73.25		74.65	87.05
	8	20.30	23.80		26.40	29.90			21		63.65			78.75	
	9	22.20	26.05		29.30	33.15			22		66.55	79.10		81.65	94.20
	10	24.15	28.30		31.25	35.40			23		69.45			85.80	
	11	26.10	30.60		34.20	38.70			24		72.35	84.90		88.70	101.25
	12		32.90			41.00			26			90.85			108.50
	13		35.25			44.40			28			96.80			115.75
	14		37.60			46.75			30			102.80			123.10
36 Largest Bore at $3\frac{1}{2}$ " Regular Price	15		40.00			50.20			32			108.85			130.50
	16		42.40			52.60		42 Largest Bore at $3\frac{1}{2}$ " Regular Price	34			114.95			138.00
	17		44.85			56.15			36			121.10			145.55
	18		47.30			59.60			38			127.35			153.15
	19		49.80			62.20			4	16.75	19.50		21.85	24.60	
	20		52.30	62.25		64.70	74.65		5	18.95	22.15		25.25	28.45	
	21		54.85			68.40			6	21.15	24.80		27.45	31.10	
	22		57.40	67.30		70.95	80.85		7	23.40	27.45		30.80	34.85	
	23		60.00			74.70			8	25.70	30.10		33.10	37.50	
	24		62.65	72.40		77.35	87.10		9	28.00	32.80		36.55	41.35	
	25			77.55		93.45			10	30.30	35.50		38.85	42.05	
	26			82.70		99.80			11	32.60	38.20		42.30	47.90	
38 Largest Bore at $3\frac{3}{8}$ " Regular Price	27			87.90		106.25			12	34.95	40.95		44.65	50.65	
	28			93.15		112.75		44 Largest Bore at $3\frac{3}{8}$ " Regular Price	13		43.70			54.60	
	29			98.45		119.35			14		46.45			57.35	
	30			103.85		126.05			15		49.25			61.35	
	31								16		52.05			64.15	
	32	12.40	14.30		16.80	18.70			17		54.90			68.25	
	33	14.20	16.55		18.60	20.95			18		57.75			71.10	
	34	16.05	18.85		21.55	24.40			19		60.60			75.20	
	35	18.00	21.15		23.50	26.65			20		63.60	78.10		78.10	92.70
	36	20.05	23.60		26.55	30.00			21		66.40			82.30	
	37	22.10	25.85		28.60	32.35			22		69.35	84.05		85.25	99.95
	38	24.15	28.25		31.70	35.80			23		72.30			89.50	
40 Largest Bore at $3\frac{1}{2}$ " Regular Price	39	26.20	30.70		33.75	38.25			24		75.35			92.55	107.30
	40	28.30	33.15		36.90	41.75		46 Largest Bore at $3\frac{1}{2}$ " Regular Price	25			90.10			114.70
	41	30.45	35.65		39.05	44.25			26			96.15			122.10
	42		38.15			47.85			27			102.20			129.60
	43		40.70			50.40			28			108.30			137.15
	44		43.25			54.05			29			114.45			144.80
	45		45.85			56.65			30			120.65			152.50
	46		48.45			60.40			31			126.90			160.25
	47		51.10			63.05			32			133.25			
	48		53.75			66.85		48 Largest Bore at $3\frac{3}{4}$ " Regular Price	4	17.90	21.05		23.35	26.50	
	49		56.45	67.55		69.55	80.65		5	20.20	23.85		26.90	30.55	
	50		59.15			73.45			6	22.00	26.05		29.30	33.35	
	51		61.90	72.95		76.20	87.25		7	25.00	29.45		32.85	37.30	
	52		64.65			80.15			8	27.40	32.25		35.25	40.10	
	53		67.40	78.45		82.90	93.95		9	29.80	35.10		38.85	44.15	
	54			83.95		100.70			10	32.20	37.95		41.25	47.00	
	55			89.55		107.55			11	34.65	40.80		44.90	51.02	
	56			95.15		114.45			12	37.10	43.70		47.35	53.95	
	57			100.80		121.40			13		46.60			57.80	
	58			106.50		128.45			14		49.50			60.70	
	59			112.80		135.60			15		52.45			65.20	
	60								16		55.40			68.15	
	61								17		58.35			72.40	

Machine Moulded Pulleys—Continued

SOLID					SPLIT			SOLID					SPLIT			
Diameter, Inches	Face, Inches	Single Belt	Double Belt	Double Arm, Double Belt	Single Belt	Double Belt	Double Arm, Double Belt	Diameter, Inches	Face, Inches	Single Belt	Double Belt	Double Arm, Double Belt	Single Belt	Double Belt	Double Arm, Double Belt	
42	18		61.35			75.40		46	36			153.05			182.20	
	19		64.35			79.70			38				160.25			190.95
	20		67.35	83.50		82.70	98.85		40				167.40			199.85
	21		70.30			87.00			48	4	22.40	26.10		29.05	32.75	
	22		73.35	89.75		90.05	106.45			5	25.05	29.40		33.10	37.45	
	23		76.30			94.35				6	27.75	32.75		35.80	40.80	
	24		79.40	96.15		97.45	114.20			7	30.45	36.10		39.80	45.45	
	26			102.50			121.95			8	33.20	39.45		42.55	48.80	
	28			108.90			129.75			9	35.95	42.85		46.65	53.55	
	30			115.30			137.60			10	38.75	46.25		49.45	57.95	
32			121.75			145.50	11	41.60		49.65		53.65	61.70			
34			128.25			153.50	12	43.90		53.10		55.95	65.15			
36			134.80			161.55		13			56.55			69.70		
38			141.45			169.65		14		60.00			73.15			
40			148.15			178.00		15		63.50			78.35			
44	4	19.30	22.65		25.15	28.50		Largest Bore at Regular Price	16		67.00			81.85		
	5	21.75	25.65		28.90	32.80			17		70.55			86.85		
	6	24.20	28.65		31.35	35.80			18		74.10			90.40		
	7	26.70	31.65		35.05	40.00			19		77.70			95.45		
	8	29.25	34.65		37.60	43.00			20		81.30	101.75	99.05	119.50		
	9	31.80	37.70		41.40	47.30			21		84.95		104.20			
	10	34.30	40.75		43.90	50.30			22		88.60	109.25	107.85	128.50		
	11	36.80	43.80		47.65	54.65			23		92.25		113.00			
	12	39.30	46.85		50.15	57.70			24		95.95	116.80	116.70	137.45		
	13		49.95			61.80			26			124.40		146.70		
Largest Bore at Regular Price	14		53.05			64.90		28			132.00		155.85			
	15		56.15			69.60		30			139.65		165.10			
	16		59.25			72.70		32			147.35		174.40			
	17		62.40			77.20		34			155.15		183.85			
	18		65.55			80.35		36			163.00		193.35			
	19		68.70			84.85		38			170.90		202.85			
	20		71.80	89.65		87.95	105.80	40			178.85		212.60			
	21		75.05			92.60		50	4				35.00			
	22		78.25	96.35		95.80	113.90		5		27.90			39.95		
	23		81.45			100.40			6		31.40			43.45		
24		84.75	103.05		103.70	122.00	7			34.90			48.30			
26			109.90			130.30	8			38.40			51.85			
28			116.70			138.55	9			41.95			56.80			
30			123.50			146.85	10			45.50			60.40			
32			130.35			155.20	11			49.10			65.40			
34			137.20			163.60	12			52.70			69.05			
36			144.10			171.05	13			56.35			73.55			
38			151.00			180.45	14		60.00			77.55				
40			157.95			189.10	15		63.70			83.00				
46	4	20.80	24.35		27.05	30.60		Largest Bore at Regular Price	16		67.40			86.75		
	5	23.35	27.50		30.95	35.10			17		71.15			92.00		
	6	25.95	30.65		33.55	38.25			18		74.90			95.80		
	7	28.55	33.85		37.40	42.70			19		78.70			101.10		
	8	31.20	37.05		40.05	45.90			20		82.50			104.95		
	9	33.85	40.25		44.00	50.40			21		86.35			110.40		
	10	36.50	43.45		46.65	53.60			22		90.25			116.30	137.10	
	11	39.15	46.70		50.60	58.15			23		94.15	115.95		119.80		
	12	41.60	49.95		53.05	61.40			24		98.10			123.75		
	13		53.20			65.70			26		102.05	123.95		145.65		
Largest Bore at Regular Price	14		56.50			69.00		28			132.00		155.30			
	15		59.80			73.95		30			140.15		165.05			
	16		63.10			77.25		32			148.35		174.90			
	17		66.45			82.00		34			156.60		184.80			
	18		69.80			87.75		36			164.85		194.75			
	19		73.15			90.10		38			173.15		204.75			
	20		76.55	95.60		93.50	112.55	40			181.50		214.75			
	21		79.95			98.35					189.95		225.05			
	22		83.40	102.75		101.80	121.15	52	4		29.80			37.35		
	23		86.85			106.70			5		33.50			42.55		
24		90.30	109.90		110.15	129.75	6			37.25			46.30			
26			117.05			138.40	7			41.00			51.45			
28			124.30			147.15	8			44.75			55.20			
30			131.45			155.85	9			48.55			60.45			
32			138.65			164.60	10			52.35			64.25			
34			145.85			173.40	11			56.20			69.55			

Machine Moulded Pulleys—Continued

SOLID					SPLIT			SOLID					SPLIT			
Diameter, Inches	Face, Inches	Single Belt	Double Belt	Double Arm, Double Belt	Single Belt	Double Belt	Double Arm, Double Belt	Diameter, Inches	Face, Inches	Single Belt	Double Belt	Double Arm, Double Belt	Single Belt	Double Belt	Double Arm, Double Belt	
52	12		60.05			78.40		56	23		116.85			141.45		
	13		63.95			78.50			24		121.45	148.50		146.05	178.10	
	14		67.85			82.40			26			158.05			184.40	
	15		71.80			88.15			28			167.75			195.85	
	16		75.75			92.10			30			177.45			207.35	
	17		79.75			97.65			32			187.20			218.90	
	18		83.75			101.65			34			197.00			230.55	
	19		87.80			107.25			36			206.85			242.25	
	20		91.85			111.30			38			216.80			254.00	
	21		95.90			116.95			40			226.80			266.00	
	22		100.00	123.65		121.05	144.70		58	4		35.95			44.95	
	23		104.10			126.75				5		40.25			50.90	
	24		108.20	132.10		130.85	154.75			6		44.60			55.25	
	25			140.75			165.00			7		49.00			61.20	
	26			149.25			175.20			8		53.45			65.65	
	27			157.85			185.50			9		57.95			71.75	
28			166.55			195.90	10			62.45			76.25			
29			175.35			206.45	11			67.00			82.40			
30			184.20			217.05	12			71.55			86.95			
31			193.10			227.65	13			76.15			92.90			
32			202.05			238.50	14			80.75			97.50			
33							15			85.40			104.10			
34							16			90.05			108.75			
35							17			94.75			115.15			
36							18			99.45			119.85			
54	4		31.75			39.75		Largest Bore at 4 1/16" Regular Price		19		104.20			126.30	
	5		35.65			45.20			20		108.95			131.05		
	6		39.60			49.15			21		113.95			137.80		
	7		43.55			54.55			22		118.60	147.40		142.45	171.25	
	8		47.55			58.55			23		123.50			149.10		
	9		51.55			64.05			24		128.45	157.40		154.05	189.00	
	10		55.60			68.10			25			167.55			194.95	
	11		59.65			73.65			26			177.65			206.85	
	12		63.75			77.75			27			187.80			218.85	
	13		67.85			83.10			28			198.00			230.90	
	14		72.00			87.25			29			208.25			243.05	
	15		76.15			93.25			30			218.60			255.30	
	16		80.35			97.45			31			229.10			267.65	
	17		84.55			103.25			32			239.70			280.30	
	18		88.80			107.50			60	4		38.20			47.70	
	19		93.05			113.35				5		42.65			53.85	
20		97.35			117.65		6			47.25			58.45			
21		101.65			123.60		7			51.85			64.65			
22		106.00	131.25		127.95	153.20	8			56.50			69.30			
23		110.35			133.95		9			61.20			75.65			
24		114.70	140.25		138.30	163.85	10			65.90			80.35			
25			149.25			174.55	11			70.65			86.75			
26			158.40			185.40	12			75.45			91.55			
27			167.60			196.35	13			80.30			97.80			
28			176.85			207.35	14			85.15			102.65			
29			186.10			218.40	15			90.05			109.55			
30			195.40			229.50	16			95.00			114.50			
31			204.75			240.60	17			100.00			121.25			
32			214.15			251.95	18			105.05			126.30			
56	4		33.80			42.30		Largest Bore at 4 1/16" Regular Price		19		110.10			133.10	
	5		37.90			48.00			20		115.20			138.20		
	6		42.05			52.15			21		120.35			145.15		
	7		46.20			57.80			22		125.55	155.45		150.35	180.25	
	8		50.40			62.00			23		130.75			157.35		
	9		54.65			67.80			24		136.00	166.00		162.60	192.60	
	10		58.95			72.10			25			176.65			205.10	
	11		63.25			77.95			26			187.35			217.65	
	12		67.50			82.20			27			198.15			230.35	
	13		71.85			87.85			28			209.05			243.15	
	14		76.25			92.25			29			220.00			256.05	
	15		80.65			98.55			30			231.05			269.05	
	16		85.10			103.00			31			242.20			282.10	
	17		89.55			109.10			32			253.45			295.45	
	18		94.05			113.60			33							
	19		98.55			119.75			34							
20		103.10			124.30		35									
21		107.65			130.55		36									
22		112.25	139.15		135.15	162.05	37									
							38									
							39									
							40									

Machine Moulded Pulleys—Continued

Diameter, Inches	SOLID				SPLIT			Diameter, Inches	SOLID				SPLIT		
	Face, Inches	Single Belt	Double Belt	Double Arm, Double Belt	Single Belt	Double Belt	Double Arm, Double Belt		Face, Inches	Single Belt	Double Belt	Double Arm, Double Belt	Single Belt	Double Belt	Double Arm, Double Belt
62	4		40.50			50.55		66	20		129.45			155.80	
	5		45.15			55.95			21		135.20			163.00	
	6		49.85			61.65			22		141.05	177.75		168.85	205.55
	7		54.00			68.05			23		146.95			176.70	
	8		59.40			72.85			24		152.95	189.20		182.70	218.95
	9		64.25			79.40			26			200.75			232.50
	10		69.15			84.30			28			212.40			246.15
	11		74.10			90.95			30			224.15			259.95
	12		79.10			95.95			32			236.00			273.85
	13		84.15			102.45			34			248.00			287.90
	14		89.25			107.55			36			260.15			302.20
	15		94.40			114.75			38			272.40			316.50
	16		99.60			119.95			40			284.80			331.15
	17		104.35			127.00		68	6		58.55			72.20	
	18		110.15			132.30			7		63.60			79.05	
	19		115.50			139.45			8		68.70			84.15	
	20		120.90			144.85			9		73.85			91.15	
	21		126.35			152.15			10		79.05			96.35	
	22		131.85	163.00		157.65	188.50		11		84.30			103.45	
	23		137.40			165.05			12		89.60			108.75	
	24		142.95	174.00		170.60	201.65		13		94.95			115.70	
	26			185.15			214.70		14		100.35			121.10	
	28			196.35			227.80		15		105.80			128.75	
	30			207.70			241.10		16		111.30			134.25	
	32			219.15			254.50		17		116.85			141.75	
	34			230.70			268.05		18		122.50			147.40	
	36			242.35			281.70		19		128.20			155.05	
	38			254.10			295.40		20		133.95			160.80	
	40			266.00			309.45		21		139.80			168.65	
64	6		52.05			65.05			22		145.75	185.45		174.60	214.30
	7		57.50			71.00			23		151.80			181.65	
	8		62.40			76.50			24		157.95	197.10		188.80	227.95
	9		67.35			83.20			26			208.80			241.70
	10		72.35			88.20			28			220.75			255.70
	11		77.40			95.00			30			232.80			269.85
	12		82.50			100.10			32			244.95			284.10
	13		87.65			106.75			34			257.20			298.50
	14		92.85			111.95			36			269.60			313.05
	15		98.10			119.30			38			282.10			327.65
	16		103.40			124.60			40			294.70			342.55
	17		108.75			131.80		70	6		61.50			75.80	
	18		114.15			137.20			7		66.70			82.85	
	19		119.60			144.50			8		71.95			88.10	
	20		125.10			150.00			9		77.85			95.30	
	21		130.65			157.45			10		82.65			100.70	
	22		136.30	170.30		163.10	197.10		11		88.10			108.05	
	23		142.05			170.20			12		93.60			113.55	
	24		147.90	181.50		176.60	210.20		13		99.15			120.75	
	26			192.85			223.50		14		104.75			126.35	
	28			204.25			236.85		15		110.40			134.25	
	30			215.80			250.40		16		116.10			139.95	
	32			227.45			264.05		17		121.90			147.75	
	34			239.20			277.80		18		127.75			153.60	
	36			251.05			291.75		19		133.70			161.55	
	38			263.00			305.70		20		139.75			167.60	
	40			275.20			320.10		21		145.90			175.80	
66	6		55.55			68.55			22		152.15	198.80		182.05	223.70
	7		60.50			75.25			23		158.50			190.45	
	8		65.50			80.25			24		164.90	205.90		196.85	237.85
	9		70.55			87.10			26			218.15			252.20
	10		75.65			92.20			28			230.45			266.60
	11		80.80			99.15			30			242.90			281.20
	12		86.00			104.35			32			255.50			295.95
	13		91.25			111.15			34			268.25			310.90
	14		96.55			116.45			36			281.15			326.00
	15		101.90			123.95			38			294.20			341.20
	16		107.30			129.35			40			307.45			356.80
	17		112.75			136.70									
	18		118.25			142.20									
	19		123.80			149.65									

Machine Moulded Pulleys—Continued

SOLID					SPLIT			SOLID					SPLIT			
Diameter, Inches	Face, Inches	Single Belt	Double Belt	Double Arm, Double Belt	Single Belt	Double Belt	Double Arm, Double Belt	Diameter, Inches	Face, Inches	Single Belt	Double Belt	Double Arm, Double Belt	Single Belt	Double Belt	Double Arm, Double Belt	
72	6		64.55				79.50	76	28						300.10	
	7		69.90				86.75		30			260.25			316.35	
	8		75.30				92.15		32			274.20			332.85	
	9		80.75				99.55		34			288.40			349.65	
	10		86.25				105.05		36			302.85			366.70	
	11		91.80				112.55		38			317.55			383.95	
	12		97.40				118.15		40			332.50			401.55	
	13		103.10				125.55					347.60				
	14		108.85				131.30		78	8	85.95			105.05		
	15		114.70				139.45			9		91.90			113.10	
	16		120.65				145.40			10		97.95			119.15	
	17		126.70				153.50			11		104.10			127.40	
	18		132.85				159.65			12		110.40			133.70	
	19		139.10				167.95			13		116.80			141.95	
	20		145.45				174.30			14		123.30			148.45	
	21		151.90				182.85			15		129.90			157.50	
22		158.45	201.95			189.40	16			136.60			164.20			
23		165.15				198.20	17			143.45			173.25			
24		171.95	214.30			205.00	18			150.40			180.20			
25			226.80				19			157.45			189.45			
26			239.45				20			164.60			196.60			
27			252.35				21			171.65			206.10			
28			265.45				22			179.20			213.45			
29			278.75				23			186.65			223.15			
30			292.25				24		194.20	242.90		230.70				
31			306.00				25			256.95			279.40			
32			320.00				26			271.25			295.75			
74	8	78.75				96.35	80	28							312.35	
	9	84.35				103.95		30			285.80			329.25		
	10	90.05				109.65		32			300.60			346.40		
	11	95.80				117.40		34			315.60			363.80		
	12	101.60				123.20		36			330.85			381.45		
	13	107.50				130.85		38			346.35			399.80		
	14	113.50				136.85		40			362.10			417.60		
	15	119.60				145.30		82	8							
	16	125.80				151.50			9	89.70			109.60			
	17	132.10				159.90			10	95.90			117.95			
	18	138.50				166.30			11	102.20			124.25			
	19	145.00				174.90			12	108.60			132.80			
	20	151.60				181.50			13	115.15			139.35			
	21	158.35				190.40			14	121.80			147.90			
	22	165.20				197.25			15	128.55			154.65			
	23	172.15				206.35			16	135.40			164.00			
24	179.20	223.50			213.40	17	142.35				170.95					
25		236.50				18	149.40				180.25					
26		249.70				19	156.60				187.45					
27		263.10				20	163.90				197.00					
28		276.70				21	171.30				204.40					
29		290.50				22	178.85				214.25					
30		304.60				23	186.40				221.80					
31		318.95				24	194.20			231.90						
32		333.50				25	202.10			239.80						
33						26		253.35				291.05				
34						27		267.95				307.00				
35						28		282.80				325.20				
36						29		297.85				342.65				
37						30		313.15				360.35				
38						31		328.70				378.35				
39						32		344.50				396.60				
40						33		360.55				415.05				
76	8	82.30				100.65	84	34							433.95	
	9	88.05				108.45		36								
	10	93.90				114.30		38								
	11	99.85				122.30		40								
	12	105.90				128.35		86	8	98.55						
	13	112.05				136.30			9	100.00						
	14	118.30				142.55			10	106.55						
	15	124.65				151.30			11	113.20						
	16	131.10				157.75			12	120.00						
	17	137.65				166.45			13	126.80						
	18	144.30				173.10			14	133.90						
	19	151.10				182.05			15	141.05						
	20	158.00				188.95			16	148.30						
	21	165.00				198.15			17	155.65						
	22	172.10				205.25			18	163.15						
	23	179.30				214.65			19	170.75						
24	186.60	233.00			221.95											
25	246.50															

Machine Moulded Pulleys—Continued

SOLID					SPLIT			SOLID					SPLIT				
Diameter, Inches	Face, Inches	Single Belt	Double Belt	Double Arm, Double Belt	Single Belt	Double Belt	Double Arm, Double Belt	Diameter, Inches	Face, Inches	Single Belt	Double Belt	Double Arm, Double Belt	Single Belt	Double Belt	Double Arm, Double Belt		
82	20		178.45			212.65		88	14		151.05			181.05			
	21		186.30			221.85			15		159.05			191.75			
	22		194.25			230.80			16		167.20			199.90			
	23		202.30			241.20			17		175.45			210.60			
	24		210.40	264.00		249.30	302.90		18		183.80			218.95			
	26		279.20	294.60			320.50		19		192.30			229.90			
	28		294.60	310.35			338.30		20		200.95			238.55			
	30		310.35	326.30			356.50		21		209.70			249.80			
	32		326.30	342.50			374.90		22		218.55			258.65			
	34		342.50	358.55			393.60		23		227.55			270.15			
	36		358.55	375.65			412.55		24		236.70	298.00		279.30	340.60		
	38		375.65	392.60			431.70		26			315.05			360.20		
	40						451.30		28			332.30			380.00		
84	8		97.50			119.00		90	30					400.15			
	9		104.20			127.95			32						420.60		
	10		111.00			134.75			34						441.40		
	11		117.90			143.90			36						462.50		
	12		124.95			150.95			38						483.85		
	13		132.10			160.10			40			442.10			505.70		
	14		139.40			167.40			92	8		109.95			134.00		
	15		146.80			177.40				9		117.55				144.00	
	16		154.35			184.95				10		125.25				151.70	
	17		162.00			194.95				11		133.05				161.90	
	18		169.80			202.75				12		141.00				169.85	
	19		177.70			213.00				13		149.05				180.05	
	20		185.75			221.05				14		157.20				188.20	
21		193.90			231.60		15			165.50				199.25			
22		202.20			239.90		16			173.90				207.65			
23		210.60			250.70		17			182.40				218.65			
24		219.00	274.90		259.10	315.00	18			191.05				227.30			
26			290.60			333.15	19			199.80				238.55			
28			306.70			351.70	20			208.70				247.45			
30			323.05			370.55	21		217.80				259.10				
32			339.65			389.65	22		227.00				268.30				
34			356.50			409.05	23		236.30				280.15				
36			373.60			428.70	24		245.70	310.20			289.55	354.05			
38			391.00			448.60	26			327.90				374.35			
40			408.65			468.95	28			345.85				394.90			
86	8		101.55			123.90		94	30					415.75			
	9		108.50			133.15			32						436.85		
	10		115.60			140.25			34						458.25		
	11		122.80			149.75			36						479.95		
	12		130.15			157.10			38						501.90		
	13		137.60			166.60			40			459.75			525.00		
	14		145.20			174.20			96	8		114.30			139.25		
	15		152.90			184.55				9		122.30				149.70	
	16		160.75			194.55				10		130.35				157.75	
	17		168.70			202.75				11		138.50				168.35	
	18		176.80			210.85				12		146.70				176.55	
	19		185.00			221.45				13		155.75				187.80	
	20		193.35			228.80				14		163.65				195.70	
21		201.80			240.70		15			172.25				207.10			
22		210.35			249.25		16			181.00				215.85			
23		219.00			260.35		17			189.85				227.25			
24		227.80	286.35		269.15	327.70	18			198.70				236.10			
26			302.70			346.55	19			207.75				247.70			
28			319.45			365.80	20			216.90				256.85			
30			336.45			385.35	21		226.20				268.77				
32			353.70			405.15	22		235.60				278.15				
34			371.20			425.25	23		245.10				290.25				
36			388.95			445.60	24		254.80	322.85			299.95	368.00			
38			407.00			466.20	26			341.65				389.45			
40			425.35			487.30	28			360.05				410.50			
88	8		105.70			128.90		30			378.95			432.10			
	9		112.95			138.50		32			398.10			453.95			
	10		120.30			145.85		34			417.50			476.10			
	11		127.80			155.70		36			437.15			498.50			
	12		135.45			163.35		38			457.20			521.25			
	13		143.20			173.20		40			477.20			544.25			

Machine Moulded Pulleys—Continued

Diameter, Inches	SOLID				SPLIT			Diameter, Inches	SOLID				SPLIT		
	Face, Inches	Single Belt	Double Belt	Double Arm, Double Belt	Single Belt	Double Belt	Double Arm, Double Belt		Face, Inches	Single Belt	Double Belt	Double Arm, Double Belt	Single Belt	Double Belt	Double Arm, Double Belt
94 Largest Bore at $5\frac{7}{16}$ " Regular Price	8	---	118.75	---	---	144.60	---	98 Largest Bore at $5\frac{7}{16}$ " Regular Price	32	---	---	446.45	---	---	506.85
	9	---	127.10	---	---	155.45	---		34	---	---	467.65	---	---	530.95
	10	---	135.50	---	---	163.85	---		36	---	---	489.05	---	---	555.25
	11	---	144.00	---	---	174.85	---		38	---	---	510.65	---	---	579.70
	12	---	152.60	---	---	183.45	---		40	---	---	532.50	---	---	604.60
	13	---	161.30	---	---	194.40	---	100 Largest Bore at $5\frac{7}{16}$ " Regular Price	8	---	131.45	---	---	160.10	---
	14	---	170.10	---	---	203.20	---		9	---	140.80	---	---	172.10	---
	15	---	179.00	---	---	214.95	---		10	---	150.20	---	---	181.50	---
	16	---	188.00	---	---	223.95	---		11	---	159.70	---	---	193.65	---
	17	---	197.15	---	---	235.70	---		12	---	169.25	---	---	203.20	---
	18	---	206.40	---	---	244.95	---		13	---	178.90	---	---	215.25	---
	19	---	215.75	---	---	256.90	---		14	---	188.55	---	---	224.90	---
	20	---	225.20	---	---	266.35	---		15	---	198.30	---	---	237.65	---
	21	---	234.75	---	---	278.55	---		16	---	208.10	---	---	247.45	---
	22	---	244.40	---	---	288.20	---		17	---	217.90	---	---	260.00	---
	23	---	254.15	---	---	300.60	---		18	---	227.80	---	---	269.90	---
	24	---	264.00	335.70	---	310.45	382.15		19	---	237.75	---	---	282.60	---
	25	---	---	354.85	---	---	404.00		20	---	247.80	---	---	292.65	---
	26	---	---	374.20	---	---	426.05		21	---	257.95	---	---	305.60	---
	27	---	---	393.80	---	---	448.40		22	---	268.15	---	---	315.80	---
	28	---	---	413.65	---	---	471.00		23	---	278.40	---	---	328.85	---
	29	---	---	433.70	---	---	493.85		24	---	288.70	---	---	339.15	---
	30	---	---	454.05	---	---	517.00		25	---	---	393.60	---	---	446.90
	31	---	---	474.65	---	---	540.35		26	---	---	414.80	---	---	470.95
	32	---	---	496.45	---	---	564.10		27	---	---	436.10	---	---	495.15
96 Largest Bore at $5\frac{7}{16}$ " Regular Price	8	---	123.30	---	---	150.05	---	102 Largest Bore at $5\frac{7}{16}$ " Regular Price	30	---	---	---	---	---	---
	9	---	132.05	---	---	161.35	---		32	---	---	---	---	---	---
	10	---	140.85	---	---	170.15	---		34	---	---	---	---	---	---
	11	---	149.75	---	---	181.60	---		36	---	---	---	---	---	---
	12	---	158.70	---	---	190.55	---		38	---	---	---	---	---	---
	13	---	167.70	---	---	201.85	---		40	---	---	---	---	---	---
	14	---	176.80	---	---	210.95	---		8	---	134.95	---	---	164.55	---
	15	---	186.00	---	---	223.05	---		9	---	144.50	---	---	176.80	---
	16	---	195.30	---	---	232.35	---		10	---	154.10	---	---	186.40	---
	17	---	204.70	---	---	244.40	---		11	---	163.75	---	---	198.75	---
	18	---	214.20	---	---	253.90	---		12	---	173.45	---	---	208.45	---
	19	---	223.80	---	---	266.15	---		13	---	183.20	---	---	220.65	---
	20	---	233.50	---	---	275.85	---		14	---	193.05	---	---	230.50	---
	21	---	243.30	---	---	288.35	---		15	---	202.95	---	---	243.45	---
	22	---	253.20	---	---	298.25	---		16	---	212.90	---	---	253.40	---
	23	---	263.20	---	---	310.95	---		17	---	222.95	---	---	266.25	---
	24	---	273.30	349.15	---	321.05	396.90		18	---	233.05	---	---	276.35	---
	25	---	---	368.95	---	---	419.45		19	---	243.20	---	---	289.30	---
	26	---	---	388.95	---	---	442.20		20	---	253.40	---	---	299.50	---
	27	---	---	409.10	---	---	465.15		21	---	263.65	---	---	312.60	---
	28	---	---	429.50	---	---	488.35		22	---	273.95	---	---	322.90	---
	29	---	---	450.20	---	---	511.90		23	---	284.30	---	---	336.10	---
	30	---	---	471.15	---	---	535.70		24	---	294.70	---	---	346.50	---
98 Largest Bore at $5\frac{7}{16}$ " Regular Price	31	---	---	492.35	---	---	559.70		25	---	---	403.05	---	---	457.75
	32	---	---	513.70	---	---	584.05		26	---	---	424.70	---	---	482.30
	33	---	---	---	---	---	---	104 Largest Bore at $5\frac{7}{16}$ " Regular Price	27	---	---	446.45	---	---	507.00
	34	---	---	---	---	---	---		28	---	---	468.30	---	---	531.80
	35	---	---	---	---	---	---		29	---	---	490.30	---	---	556.80
	36	---	---	---	---	---	---		30	---	---	512.50	---	---	582.00
	37	---	---	---	---	---	---		31	---	---	534.90	---	---	607.35
	38	---	---	---	---	---	---		32	---	---	557.50	---	---	633.10
	39	---	---	---	---	---	---		8	---	138.45	---	---	169.05	---
	40	---	---	---	---	---	---		9	---	148.20	---	---	181.55	---
	41	---	---	---	---	---	---		10	---	158.00	---	---	191.35	---
	42	---	---	---	---	---	---		11	---	167.85	---	---	203.95	---
	43	---	---	---	---	---	---		12	---	177.75	---	---	213.85	---
	44	---	---	---	---	---	---		13	---	187.70	---	---	226.30	---
	45	---	---	---	---	---	---		14	---	197.70	---	---	236.30	---
	46	---	---	---	---	---	---		15	---	207.75	---	---	249.45	---
	47	---	---	---	---	---	---		16	---	217.85	---	---	259.55	---
	48	---	---	---	---	---	---		17	---	228.00	---	---	272.55	---
	49	---	---	---	---	---	---		18	---	238.20	---	---	282.75	---
	50	---	---	---	---	---	---		19	---	248.45	---	---	295.85	---
	51	---	---	---	---	---	---		20	---	258.80	---	---	306.20	---
	52	---	---	---	---	---	---		21	---	269.20	---	---	319.50	---
	53	---	---	---	---	---	---		54	---	---	---	---	---	---

Machine Moulded Pulleys—Continued

SOLID						SPLIT			SOLID						SPLIT		
Diameter, Inches	Face, Inches	Single Belt	Double Belt	Double Arm, Double Belt		Single Belt	Double Belt	Double Arm, Double Belt	Diameter, Inches	Face, Inches	Single Belt	Double Belt	Double Arm, Double Belt	Single Belt	Double Belt	Double Arm, Double Belt	
104	22	---	279.65	---			329.95	---	110	15	---	226.80	---			272.15	
	23	---	290.15	---			343.35	---		16	---	237.70	---	---	---	283.05	
	24	---	300.70	---			353.90	---		17	---	248.70	---	---	---	297.05	
	26	---		412.95	---		469.10	---		18	---	259.80	---	---	---	308.15	
	28	---		434.95	---		494.05	---		19	---	270.95	---	---	---	322.80	
	30	---		457.05	---		519.15	---		20	---	282.20	---	---	---	333.55	
	32	---		479.25	---		544.35	---		21	---	293.55	---	---	---	347.95	
	34	---		501.60	---		569.75	---		22	---	304.05	---	---	---	359.35	
	36	---		524.05	---		595.25	---		23	---	316.45	---	---	---	373.90	
	38	---		546.60	---		620.80	---		24	---	328.00	---	---	---	385.45	
	40	---		569.35	---		646.75	---		26	---		451.45	---	---	512.00	
106	8	---	142.60	---			174.20	---	112	28	---		475.10	---	---	538.75	
	9	---	152.55	---			186.95	---		30	---		498.95	---	---	565.75	
	10	---	162.55	---			196.95	---		32	---		522.95	---	---	592.90	
	11	---	172.65	---			209.85	---		34	---		547.15	---	---	620.30	
	12	---	182.80	---			220.00	---		36	---		571.55	---	---	637.90	
	13	---	193.00	---			232.75	---		38	---		596.10	---	---	675.60	
	14	---	203.30	---			243.05	---		40	---		620.95	---	---	708.90	
	15	---	213.65	---			255.55	---		Largest Bore at 5 7/16" Regular Price							
	16	---	224.05	---			266.95	---									
	17	---	234.55	---			280.35	---									
	18	---	245.10	---			290.90	---									
	19	---	255.70	---			304.40	---									
	20	---	266.40	---			315.10	---									
	21	---	277.15	---			328.80	---									
	22	---	287.85	---			339.50	---									
	23	---	298.80	---			353.40	---									
	24	---	309.70	---			364.30	---									
	26	---		424.60	---		482.20	---									
	28	---		447.25	---		507.85	---									
30	---		470.05	---		533.70	---										
32	---		492.90	---		559.60	---										
34	---		516.00	---		585.80	---										
36	---		539.20	---		612.10	---										
38	---		562.55	---		638.50	---										
40	---		586.10	---		665.30	---										
108	8	---	147.60	---			180.20	---	114	26	---		465.95	---	---	528.00	
	9	---	157.75	---			193.20	---		28	---		490.25	---	---	555.45	
	10	---	167.95	---			203.40	---		30	---		514.70	---	---	583.10	
	11	---	178.25	---			216.55	---		32	---		539.35	---	---	610.95	
	12	---	188.60	---			226.90	---		34	---		564.10	---	---	640.65	
	13	---	199.05	---			239.95	---		36	---		588.95	---	---	668.80	
	14	---	209.55	---			250.45	---		38	---		614.00	---	---	697.10	
	15	---	220.15	---			264.25	---		40	---		641.50	---	---	726.20	
	16	---	230.80	---			274.90	---		Largest Bore at 5 7/16" Regular Price							
	17	---	241.55	---			288.60	---									
	18	---	252.35	---			299.40	---									
	19	---	263.25	---			313.25	---									
	20	---	274.70	---			324.70	---									
	21	---	285.25	---			338.25	---									
	22	---	296.40	---			349.40	---									
	23	---	307.55	---			363.55	---									
	24	---	318.80	---			374.80	---									
	26	---		437.90	---		496.95	---									
	28	---		461.00	---		523.10	---									
30	---		484.35	---		549.55	---										
32	---		507.75	---		576.05	---										
34	---		531.40	---		602.85	---										
36	---		555.15	---		629.75	---										
38	---		579.15	---		656.85	---										
40	---		604.35	---		685.35	---										
110	8	---	152.70	---			186.35	---		26	---		480.35	---	---	543.90	
	9	---	163.05	---			199.60	---		28	---		505.25	---	---	572.00	
	10	---	173.45	---			210.00	---		30	---		530.20	---	---	600.20	
	11	---	183.95	---			223.40	---		32	---		555.40	---	---	628.65	
	12	---	194.55	---			234.00	---		34	---		580.70	---	---	657.25	
	13	---	205.20	---			247.30	---		36	---		606.10	---	---	686.95	
	14	---	215.95	---			258.05	---		38	---		631.75	---	---	714.85	
										40	---		657.60	---	---	744.15	

Machine Moulded Pulleys—Continued

SOLID					SPLIT			SOLID					SPLIT		
Diameter, Inches	Face, Inches	Single Belt	Double Belt	Double Arm, Double Belt	Single Belt	Double Belt	Double Arm, Double Belt	Diameter, Inches	Face, Inches	Single Belt	Double Belt	Double Arm, Double Belt	Single Belt	Double Belt	Double Arm, Double Belt
116	8		168.60			205.45		118	20		315.80			372.65	
	9		179.70			219.60			21		328.15			388.25	
	10		190.90			230.80			22		340.60			400.70	
	11		202.20			245.15			23		353.15			416.50	
	12		213.55			256.50			24		365.80			429.15	
	13		225.00			270.75			26			509.85			576.50
	14		236.55			282.30			28			535.70			605.65
	15		248.15			297.30			30			561.65			634.95
	16		259.85			309.00			32			587.85			664.50
	17		271.65			323.95			34			614.25			694.30
	18		283.50			335.80			36			640.85			724.30
	19		295.45			350.90			38			667.70			754.50
	20		307.45			362.90			40			694.75			785.10
	21		319.50			375.15		120	8						
	22		331.65			390.80			9		179.80			218.85	
	23		343.90			405.75			10					233.60	
	24		356.20			418.05			11					245.25	
	26			495.00			500.10		12		203.05			260.15	
	28			520.40			588.75		13		214.80			271.95	
	30			545.95			617.60		14		226.60			286.75	
	32			571.65			646.60		15		238.50			298.70	
	34			597.65			675.95		16		250.45			314.25	
	36			623.70			705.35		17		262.50			326.40	
	38			650.00			734.95		18		274.65			341.90	
	40			676.40			764.85		19		286.90			354.25	
118	8		174.10			212.05			20		299.25			369.95	
	9		185.50			226.55			21		311.70			382.50	
	10		196.95			238.00			22		324.25			398.45	
	11		208.45			252.60			23		336.90			411.20	
	12		220.05			264.20			24		349.65			427.35	
	13		231.75			278.75			26		362.50			440.35	
	14		243.50			280.50			28		375.50				592.90
	15		255.30			305.75			30			524.70			622.00
	16		267.20			317.65			32			551.00			652.45
	17		279.20			332.85			34			577.50			682.60
	18		291.30			344.95			36			604.25			713.00
	19		303.50			360.35			38			631.20			743.60
									40			658.35			775.25
												686.60			805.00
												713.35			

Additional Prices for Bores Larger Than Maximum as Specified in Standard List

Diameter		
6 to 15 inches	Add 10 per cent for each additional $\frac{1}{4}$ inch or fractional part thereof	
16 to 30 inches	Add 10 per cent for each additional $\frac{1}{4}$ inch or fractional part thereof	
31 to 60 inches	Add 5 per cent for each additional $\frac{1}{4}$ inch or fractional part thereof	

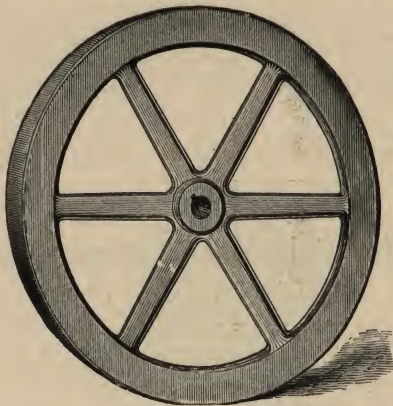
Additional Price to be Added to the List Price Per Pair for Tight and Loose Pulleys

Diameter, Inches	Face, Inches						
	3 & 4	5 & 6	7 & 8	9 & 10	11 & 12	13 & 14	15 & 16
6 to 9	1.30	2.00	3.00	4.50			
10 to 15	1.50	2.30	3.40	5.00	7.00		
16 to 20	2.10	2.90	4.00	5.50	7.50		
21 to 30	3.30	4.10	5.20	6.80	9.10	12.50	
31 to 42	4.50	5.50	6.90	9.00	12.10	16.50	23.00
43 to 60	6.00	7.40	9.30	12.00	15.80	21.00	29.00

**Additional Price to be Added to the List Price for
Double Flange Pulleys**

Diameter, Inches	Price	Diameter, Inches	Price
6 to 7	2.40	46 to 47	33.85
8 to 9	3.10	48 to 50	37.60
10 to 11	3.90	52 to 54	42.25
12 to 13	4.70	56 to 58	47.20
14 to 15	5.65	60 to 62	52.25
16 to 17	6.60	64 to 66	57.50
18 to 19	7.60	68 to 70	62.85
20 to 21	8.80	72 to 74	68.30
22 to 23	10.15	76 to 78	73.75
24 to 25	11.50	80 to 82	79.30
26 to 27	13.05	84 to 86	84.75
28 to 29	14.70	88 to 90	90.10
30 to 31	16.40	92 to 94	95.40
32 to 33	18.20	96 to 98	100.85
34 to 35	20.05	100 to 102	106.00
36 to 37	21.95	104 to 106	111.80
38 to 39	24.10	108 to 110	117.15
40 to 41	26.35	112 to 114	122.35
42 to 43	28.75	116 to 118	127.35
44 to 45	31.30	120	132.05

Pulleys with one flange only take one-half of the above list.
Pulleys with three flanges take one-half more than the list given above.



Fly Wheels

PRICES ON APPLICATION

SPECIAL PULLEYS MADE TO ORDER.

Finished Shafting

Diameter	1½	1¾	1⅞	1⅞	1⅞	2⅞	2⅞	2⅞	2⅞
Price per foot	.40	.42	.61	.76	1.01	1.28	1.60	1.94	2.32
Boxing per foot, net	2½	2½	3	3	3	3½	4	4½	5
Weight per foot	2.35	3.77	5.52	7.61	10.03	12.80	15.89	19.31	23.06
Diameter	3⅞	3⅞	3⅞	3⅞	4⅞	4⅞	5⅞	5⅞	
Price per foot	2.86	3.32	4.00	4.54	6.32	8.52	11.20	13.20	
Boxing per foot, net	5½	6	6½	7					
Weight per foot	27.16	31.58	36.40	41.04	52.62	65.50	78.95	94.14	

Standard lengths, 10, 12, 14, 16, 18 and 20 feet. A moderate extra charge will be made for cutting to other lengths. Larger diameters made to order.

Key Seating Shafts

Diameter	1½	1¾	1⅞	1⅞	1⅞	2⅞	2⅞	2⅞	2⅞
Key seat for coupling, each end	.84	.84	.84	.96	.96	.96	1.08	1.08	1.20
Key seats for pulleys, one foot long or less	1.08	1.08	1.08	1.08	1.20	1.20	1.30	1.30	1.60
For each additional foot or fraction of foot	.36	.36	.38	.44	.54	.54	.72	.72	1.08
Diameter	3⅞	3⅞	3⅞	3⅞	4⅞	4⅞	5⅞	5⅞	
Key seat for coupling, each end	1.20	1.30	1.30	1.70	2.20	2.60	3.40	4.20	
Key seats for pulleys, one foot long or less	1.60	2.00	2.00	2.20	2.60	4.00	5.30	6.60	
For each additional foot or fraction of foot	1.08	1.20	1.20	1.40	1.80	2.60	3.70	4.30	

Fitting Iron Pulleys and Rope Sheaves to Shafting

We are prepared to fit Pulleys and Rope Sheaves to shafting at the prices given below. These prices include key seating shafting and keys.

Diameter of Shaft	Width of Face, Inches							
	3 to 6	7 to 9	10 to 12	13 to 16	17 to 20	21 to 24	25 to 30	31 to 36
1½ to 2	2.90	2.90	2.90					
2½ to 2½	2.90	3.05	3.30	3.75	4.00			
2½ to 3	3.05	3.30	3.65	4.00	4.50	5.00	5.80	6.65
3½ to 3½	3.25	3.50	3.80	4.15	4.80	5.30	6.15	7.05
3½ to 4	3.30	3.65	4.00	4.50	5.25	6.40	7.50	8.30
4½ to 4½	3.95	4.50	5.00	5.55	7.00	8.30	9.75	11.15
4½ to 5	5.00	5.55	6.40	7.25	8.30	9.75	11.10	12.50

Keys for Pulleys and Rope Sheaves

NOT FITTED TO SHAFT

Diameter of Shaft	Width of Face, Inches							
	3 to 6	7 to 9	10 to 12	13 to 16	17 to 20	21 to 24	25 to 30	31 to 36
1½ to 2	.35	.50	.60					
2½ to 2½	.50	.60	.70	.85	1.00			
2½ to 3	.55	.70	.85	1.00	1.20	1.70	2.00	2.35
3½ to 3½	.85	1.00	1.20	1.45	1.70	2.00	2.35	2.85
3½ to 4	1.15	1.30	1.45	1.65	1.85	2.15	2.50	3.20
4½ to 4½	1.25	1.40	1.55	1.75	2.00	2.25	2.75	3.35
4½ to 5	1.40	1.55	1.75	2.00	2.25	2.50	2.85	3.35

Key Seating Iron Pulleys and Rope Sheaves

Diameter of Shaft	Width of Face, Inches							
	3 to 6	7 to 9	10 to 12	13 to 16	17 to 20	21 to 24	25 to 30	31 to 36
1½ to 2	.83	1.00	1.25					
2½ to 2¾	1.00	1.25	1.33	1.67	2.08			
2¾ to 3	1.25	1.42	2.08	2.91	3.92	5.00	6.25	6.92
3¼ to 3½	1.42	1.58	2.17	3.00	4.08	5.16	6.33	7.08
3¾ to 4	1.67	2.00	2.50	3.33	4.50	5.58	6.67	7.92
4¼ to 4½	2.17	2.75	3.33	4.17	5.00	5.83	7.00	8.33
4¾ to 5	2.50	3.25	3.92	5.00	6.17	7.25	8.33	9.75

Prices of Pulleys and Sheaves include either set screws or key seats. The above list gives the extra prices for key seats where both set screws and key seats are used.



Safety Set Collars—Solid

Size	1 $\frac{3}{8}$	1 $\frac{7}{8}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	2 $\frac{1}{8}$	2 $\frac{7}{8}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	3 $\frac{3}{8}$	3 $\frac{7}{8}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	
Price	each	.80	1.00	1.20	1.40	1.60	1.80	2.10	2.40	2.70	3.00	3.30	3.60
Size	4 $\frac{1}{8}$	4 $\frac{7}{8}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	5 $\frac{1}{8}$	5 $\frac{1}{2}$	6 $\frac{1}{8}$	6 $\frac{1}{8}$	7 $\frac{1}{2}$	8	8 $\frac{1}{2}$	9	
Price	each	4.15	4.70	5.30	5.90	7.20	8.60	10.10	11.70	14.05	16.20	18.45	20.70



Safety Set Collars—Split

Size	1½	1¾	1½	1¾	2½	2¾	2½	2¾	3½	3¾	3½	3¾	
Price	each	1.20	1.50	1.80	2.10	2.40	2.70	3.15	3.60	4.05	4.50	4.95	5.40
Size	4½	4¾	4½	4¾	5½	5¾	6½	6¾	7½	8	8½	9	
Price	each	6.25	7.05	7.85	8.85	10.80	12.90	15.15	17.55	21.10	24.25	27.65	31.05



Face or Flange Couplings

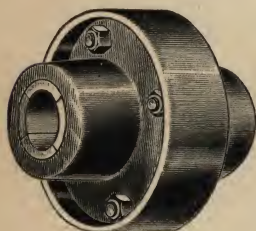
Size	1 $\frac{1}{8}$ "	1 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "	2"	2 $\frac{1}{2}$ "	2 $\frac{3}{4}$ "	3"	3 $\frac{1}{2}$ "
Price, not fitted to shaft	7.50	8.00	8.50	9.00	10.50	12.50	15.25	18.25
Price, fitted to shaft	9.90	10.50	11.10	11.75	13.40	15.60	18.50	21.75
Size	3 $\frac{1}{8}$ "	3 $\frac{1}{2}$ "	3 $\frac{3}{4}$ "	4"	4 $\frac{1}{2}$ "	4 $\frac{3}{4}$ "	5"	5 $\frac{1}{2}$ "
Price, not fitted to shaft	21.75	25.25	29.25	33.25	38.25	43.25	49.00	54.75
Price, fitted to shaft	25.75	29.75	34.25	39.25	45.00	51.25	57.75	64.75
Size	5 $\frac{1}{8}$ "	5 $\frac{1}{2}$ "	6 $\frac{1}{8}$ "	6 $\frac{1}{2}$ "	7 $\frac{1}{8}$ "	7 $\frac{1}{2}$ "	8"	9"
Price, not fitted to shaft	67.00	81.00	95.50	110.00	126.00	142.00	160.00	179.00
Price, fitted to shaft	78.00	93.00	109.00	125.00	144.00	163.00	184.00	206.00



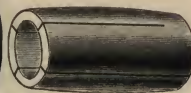
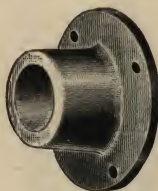
Compression or Clamp Couplings

Size	1 $\frac{1}{8}$ "	1 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "	2"	2 $\frac{1}{2}$ "	2 $\frac{3}{4}$ "	3"	3 $\frac{1}{2}$ "
Price, not fitted to shaft	5.50	6.00	7.00	8.00	9.00	10.75	13.00	18.00
Price, fitted to shaft	7.20	7.70	8.70	9.70	11.50	14.00	16.50	22.00
Size	2 $\frac{1}{8}$ "	2 $\frac{1}{2}$ "	3"	3 $\frac{1}{2}$ "	4"	4 $\frac{1}{2}$ "	5"	5 $\frac{1}{2}$ "
Price, not fitted to shaft	16.50	20.00	24.00	28.00	32.00	35.00	42.00	48.00
Price, fitted to shaft	20.50	24.75	28.50	33.50	37.75	41.00	50.00	56.00

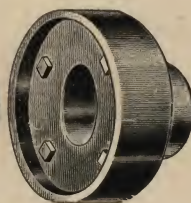
We do not recommend this style of Coupling for shafts larger than 2 $\frac{1}{8}$ ".



Complete



Separate Parts



Grizzly Compression Couplings

No key-ways. Perfect alignment. A wrench goes with each coupling, and anyone can put it on. Tighten the bolts gradually, one after the other.

Size	1 $\frac{1}{8}$ "	1 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "	2"	2 $\frac{1}{2}$ "	2 $\frac{3}{4}$ "	3"	3 $\frac{1}{2}$ "
Price	4.25	4.75	5.00	5.50	6.25	8.00	9.00	10.75
Size	2 $\frac{1}{8}$ "	2 $\frac{1}{2}$ "	3"	3 $\frac{1}{2}$ "	4"	4 $\frac{1}{2}$ "	5"	5 $\frac{1}{2}$ "
Price	16.00	32.50	39.25	45.25	51.25	61.50	71.75	83.00
								94.00

For reducing couplings, add 10 per cent to the larger size.



Nicholson Compression Couplings

These couplings obviate the cost of key-seating shafts, fitting keys and refacing. They have a powerful grip and will not slip under the heaviest strain when attached according to simple instructions which accompany each coupling.

Size	1 3/8	1 1/2	1 7/8	1 11/8	1 1 1/2	2 1/8	2 1/4	2 1/2
Price	4.75	5.00	5.50	6.25	8.00	9.00	10.75	13.00
Length	5 1/4"	5 3/4"	6 1/2"	6 3/4"	8"	8 1/2"	9 3/4"	10 1/4"
Size	2 1/8	3 1/8	3 7/8	3 1 1/2	4 1/8	4 1 1/2	5 1/8	5 1 1/2
Price	16.00	19.00	23.00	30.00	42.00	55.00	65.00	76.00
Length	11 1/4"	12 1/4"	13 1/4"	14 1/4"	16 1/4"	17 3/4"	19 1/4"	21 3/4"

For reducing couplings, add 20 per cent to the larger size.
Prices of intermediate sizes same as next larger coupling listed.



Square Jaw Clutch



Spiral Jaw, Left Hand

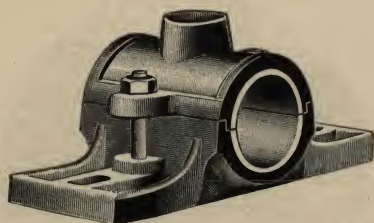


Spiral Jaw, Right Hand

Spiral and Square Jaw Clutch Couplings

Size	1 3/8	1 1/2	1 7/8	1 11/8	2 1/8	2 1/4	2 1/2	2 3/4	3 1/8
Price, not fitted to shaft	8.75	9.60	10.70	12.70	14.90	17.75	20.50	24.00	28.00
Price, fitted to shaft	14.25	15.35	16.90	19.40	22.00	25.25	29.00	33.00	38.50
Price of lever	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.50	12.50
Size	3 7/8	4 1/8	4 1/2	4 3/4	5 1/8	5 1/2	5 3/4	6 1/8	6 1/2
Price, not fitted to shaft	36.00	44.00	53.00	62.00	72.00	80.00	88.00	96.00	115.00
Price, fitted to shaft	48.00	56.50	66.50	77.00	89.00	99.00	109.00	119.00	142.00
Price of lever	12.50	12.50	15.25	15.25	15.25	15.25	18.00	18.00	18.00

WE CAN FURNISH THESE CLUTCHES ATTACHED TO HUBS OF PULLEYS, SPROCKET WHEELS, GEARS, ETC. IN ORDERING SPIRAL CLUTCHES, ALWAYS STATE WHETHER THEY ARE WANTED RIGHT OR LEFT HAND. (SEE CUTS).



Common Flat Boxes

Size	1	1 $\frac{1}{8}$	1 $\frac{3}{8}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	2 $\frac{1}{8}$	2 $\frac{3}{8}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	3 $\frac{1}{8}$	3 $\frac{3}{8}$	3 $\frac{1}{2}$
Price	1.20	1.85	1.65	2.00	2.30	2.80	3.40	4.10	5.00	6.20	7.60	9.50
Length bearing	2 $\frac{1}{2}$ "	3"	3 $\frac{1}{2}$ "	4"	4 $\frac{1}{2}$ "	5"	5 $\frac{1}{2}$ "	6"	6 $\frac{1}{2}$ "	7"	7 $\frac{1}{2}$ "	8"
From bottom to center of shaft	1 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "	1 $\frac{1}{2}$ "	1 $\frac{5}{8}$ "	1 $\frac{3}{4}$ "	1 $\frac{7}{8}$ "	2"	2 $\frac{1}{8}$ "	2 $\frac{1}{4}$ "	2 $\frac{3}{8}$ "	2 $\frac{3}{4}$ "	3 $\frac{1}{8}$ "

Common Post Boxes, similar to above, at same list prices.



Solid Journal Boxes

BORED OR BABBITTED BEARINGS

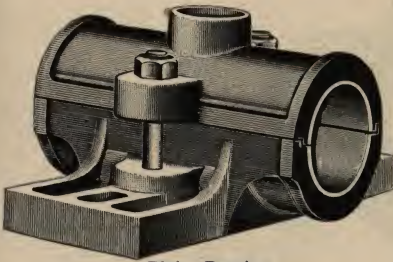
Size	1 $\frac{1}{8}$	1 $\frac{3}{8}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	2 $\frac{1}{8}$	2 $\frac{3}{8}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$
Price	.95	1.20	1.50	1.80	2.10	2.70	3.20	4.80



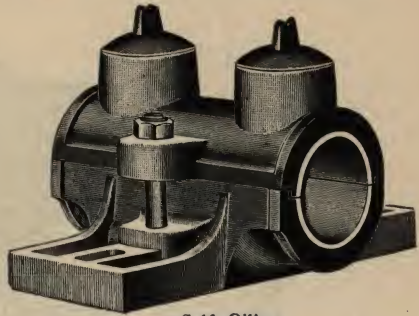
Rigid Vertical Boxes

SELF OILING BEARINGS

Size	1 $\frac{1}{8}$	1 $\frac{3}{8}$	1 $\frac{1}{2}$	2 $\frac{1}{8}$	2 $\frac{3}{8}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	3 $\frac{1}{8}$	3 $\frac{3}{8}$	3 $\frac{1}{2}$
Price	3.25	3.75	5.00	6.25	7.50	9.00	11.25	13.00	16.00	22.00



Plain Bearing



Self Oiling

Rigid Pillow Blocks
PLAIN BEARINGS

Size	1 $\frac{1}{8}$ "	1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "	2 $\frac{1}{8}$ "	2 $\frac{1}{4}$ "	2 $\frac{1}{2}$ "	2 $\frac{3}{4}$ "	3 $\frac{1}{8}$ "
Price	1.60	2.10	2.70	3.70	4.60	5.50	7.00	8.80	11.00
Length of bearing	3 $\frac{3}{4}$ "	4 $\frac{1}{2}$ "	5 $\frac{1}{2}$ "	6"	6 $\frac{3}{4}$ "	7 $\frac{1}{2}$ "	8 $\frac{3}{4}$ "	9"	10"
From bottom to center of shaft	1 $\frac{1}{8}$ "	1 $\frac{3}{8}$ "	1 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "	2"	2 $\frac{1}{4}$ "	2 $\frac{3}{4}$ "	2 $\frac{5}{8}$ "	3"
Size	3 $\frac{7}{8}$ "	3 $\frac{1}{2}$ "	3 $\frac{3}{4}$ "	4 $\frac{1}{8}$ "	4 $\frac{1}{4}$ "	4 $\frac{1}{2}$ "	4 $\frac{3}{4}$ "	5 $\frac{1}{8}$ "	5 $\frac{1}{4}$ "
Price	12.80	14.40	16.00	18.50	21.00	24.00	27.00	34.00	43.00
Length of bearing	10 $\frac{3}{4}$ "	11 $\frac{1}{2}$ "	12"	12 $\frac{3}{4}$ "	13 $\frac{1}{2}$ "	14 $\frac{1}{2}$ "	15"	16 $\frac{1}{2}$ "	18"
From bottom to center of shaft	3 $\frac{1}{4}$ "	3 $\frac{3}{8}$ "	3 $\frac{1}{2}$ "	3 $\frac{3}{4}$ "	4"	4 $\frac{1}{4}$ "	4 $\frac{3}{8}$ "	4 $\frac{3}{4}$ "	5 $\frac{1}{4}$ "

All Rigid Pillow Blocks of larger diameter than 3 $\frac{1}{8}$ " are made with double ears.

Rigid Pillow Blocks
SELF OILING BEARINGS

Size	1 $\frac{1}{8}$ "	1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "	2 $\frac{1}{8}$ "	2 $\frac{1}{4}$ "	2 $\frac{1}{2}$ "	2 $\frac{3}{4}$ "	3 $\frac{1}{8}$ "
Price	1.80	2.30	3.00	4.00	5.00	6.00	7.40	9.50	11.60
Length of bearing	3 $\frac{3}{4}$ "	4 $\frac{1}{2}$ "	5 $\frac{1}{2}$ "	6"	6 $\frac{3}{4}$ "	7 $\frac{1}{2}$ "	8 $\frac{3}{4}$ "	9"	10"
From bottom to center of shaft	1 $\frac{1}{8}$ "	1 $\frac{3}{8}$ "	1 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "	2"	2 $\frac{1}{4}$ "	2 $\frac{3}{4}$ "	2 $\frac{5}{8}$ "	3"
Size	3 $\frac{7}{8}$ "	3 $\frac{1}{2}$ "	3 $\frac{3}{4}$ "	4 $\frac{1}{8}$ "	4 $\frac{1}{4}$ "	4 $\frac{1}{2}$ "	4 $\frac{3}{4}$ "	5 $\frac{1}{8}$ "	5 $\frac{1}{4}$ "
Price	13.80	16.45	18.70	21.70	24.20	27.85	30.85	38.00	48.00
Length of bearing	10 $\frac{3}{4}$ "	11 $\frac{1}{2}$ "	12"	12 $\frac{3}{4}$ "	13 $\frac{1}{2}$ "	14 $\frac{1}{2}$ "	15"	16 $\frac{1}{2}$ "	18"
From bottom to center of shaft	3 $\frac{1}{4}$ "	3 $\frac{3}{8}$ "	3 $\frac{1}{2}$ "	3 $\frac{3}{4}$ "	4"	4 $\frac{1}{4}$ "	4 $\frac{3}{8}$ "	4 $\frac{3}{4}$ "	5 $\frac{1}{4}$ "

All Rigid Pillow Blocks of larger diameter than 3 $\frac{7}{8}$ " are made with double ears.



Rigid Pillow Blocks
RING OILING BEARINGS

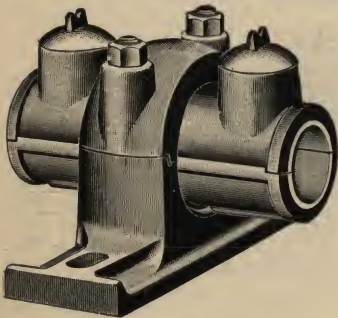
Size	1 $\frac{1}{8}$ "	1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "	2 $\frac{1}{8}$ "	2 $\frac{1}{4}$ "	2 $\frac{1}{2}$ "	2 $\frac{3}{4}$ "	3 $\frac{1}{8}$ "
Price	4.50	5.00	5.70	6.80	8.20	9.80	12.00	14.00	18.00
Length of bearing	5 $\frac{1}{2}$ "	6 $\frac{1}{2}$ "	7"	8"	8 $\frac{3}{4}$ "	9 $\frac{1}{2}$ "	10 $\frac{1}{2}$ "	11 $\frac{1}{2}$ "	12"
From bottom to center of shaft	1 $\frac{1}{2}$ "	2"	2"	2 $\frac{1}{4}$ "	2 $\frac{3}{8}$ "	2 $\frac{3}{4}$ "	3"	3 $\frac{1}{8}$ "	3 $\frac{1}{4}$ "
Size	3 $\frac{7}{8}$ "	3 $\frac{1}{2}$ "	3 $\frac{3}{4}$ "		4 $\frac{1}{8}$ "		4 $\frac{1}{2}$ "	5 $\frac{1}{8}$ "	5 $\frac{1}{4}$ "
Price	22.00	27.00	32.00		42.00		54.00	66.00	80.00
Length of bearing	12 $\frac{3}{4}$ "	13 $\frac{1}{2}$ "	14 $\frac{1}{2}$ "		16"		17 $\frac{3}{4}$ "	19"	20 $\frac{3}{4}$ "
From bottom to center of shaft	3 $\frac{1}{4}$ "	3 $\frac{3}{8}$ "	4"		4 $\frac{3}{8}$ "		5"	5 $\frac{1}{2}$ "	6"



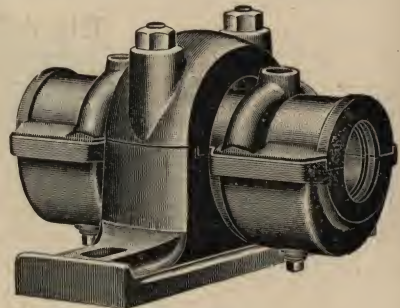
Ball and Socket Pillow Blocks

PLAIN BEARINGS

Size	1 $\frac{1}{8}$	1 $\frac{3}{8}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	2 $\frac{1}{8}$	2 $\frac{3}{8}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	3 $\frac{1}{8}$	3 $\frac{3}{8}$
Price	3.30	3.90	4.60	5.60	7.00	9.00	11.50	14.00	17.00	21.00
Length of bearing	5"	6"	7"	8"	9"	10"	11"	12"	13"	14"
From bottom to center of shaft	1 $\frac{3}{4}$ "	2 $\frac{1}{4}$ "	2 $\frac{3}{4}$ "	2 $\frac{3}{4}$ "	3 $\frac{1}{4}$ "	3 $\frac{1}{2}$ "	3 $\frac{3}{4}$ "	4 $\frac{1}{4}$ "	4 $\frac{3}{4}$ "	5"
Size	3 $\frac{1}{8}$	3 $\frac{3}{8}$	4 $\frac{1}{8}$	4 $\frac{3}{8}$	5 $\frac{1}{8}$	5 $\frac{3}{8}$	6 $\frac{1}{8}$	6 $\frac{3}{8}$	7 $\frac{1}{8}$	7 $\frac{3}{8}$
Price	25.00	30.00	40.00	50.00	61.00	72.00	88.00	95.00	109.00	124.00
Length of bearing	15"	16"	18"	20"	22"	24"	26"	28"	30"	32"
From bottom to center of shaft	5 $\frac{1}{8}$ "	5 $\frac{3}{8}$ "	5 $\frac{7}{8}$ "	6 $\frac{1}{4}$ "	6 $\frac{3}{4}$ "	7 $\frac{1}{4}$ "	7 $\frac{3}{4}$ "	8 $\frac{1}{4}$ "	8 $\frac{3}{4}$ "	9"



Self Oiling



Ring Oiling

Ball and Socket Pillow Blocks

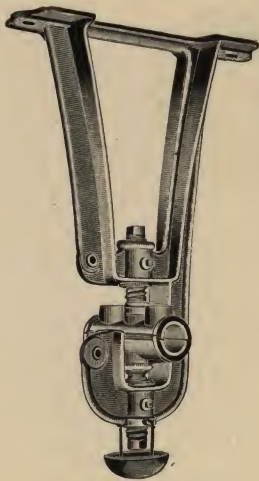
SELF OILING BEARINGS

Size	1 $\frac{1}{8}$	1 $\frac{3}{8}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	2 $\frac{1}{8}$	2 $\frac{3}{8}$	2 $\frac{1}{2}$
Price	3.60	4.40	5.10	6.20	7.90	10.00	12.60
Length of bearing	5"	6"	7"	8"	9"	10"	11"
From bottom to center of shaft	1 $\frac{3}{4}$ "	2 $\frac{1}{4}$ "	2 $\frac{3}{4}$ "	2 $\frac{3}{4}$ "	3 $\frac{1}{4}$ "	3 $\frac{1}{2}$ "	3 $\frac{3}{4}$ "
Size	2 $\frac{1}{8}$	3 $\frac{1}{8}$	3 $\frac{3}{8}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$	4 $\frac{1}{8}$	4 $\frac{3}{8}$
Price	15.60	19.00	23.00	27.80	33.60	44.40	55.50
Length of bearing	12"	13"	14"	15"	16"	18"	20"
From bottom to center of shaft	4 $\frac{1}{4}$ "	4 $\frac{3}{8}$ "	5"	5 $\frac{3}{8}$ "	5 $\frac{7}{8}$ "	5 $\frac{7}{8}$ "	6 $\frac{1}{4}$ "

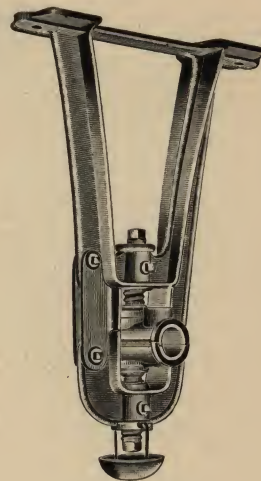
Ball and Socket Pillow Blocks

RING OILING BEARINGS

Size	1 $\frac{1}{8}$	1 $\frac{3}{8}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	2 $\frac{1}{8}$	2 $\frac{3}{8}$	2 $\frac{1}{2}$
Price	5.80	6.40	7.10	8.20	10.00	12.60	16.00
Length of bearing	6 $\frac{3}{8}$ "	7 $\frac{1}{8}$ "	8 $\frac{1}{8}$ "	9 $\frac{1}{8}$ "	10 $\frac{3}{8}$ "	11 $\frac{3}{8}$ "	12 $\frac{3}{8}$ "
From bottom to center of shaft	1 $\frac{3}{8}$ "	2 $\frac{1}{8}$ "	2 $\frac{3}{8}$ "	2 $\frac{3}{8}$ "	3 $\frac{1}{8}$ "	3 $\frac{3}{8}$ "	3 $\frac{7}{8}$ "
Size	2 $\frac{1}{8}$	3 $\frac{1}{8}$	3 $\frac{3}{8}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$	4 $\frac{1}{8}$	4 $\frac{3}{8}$
Price	19.00	23.00	29.00	35.00	41.00	54.00	68.00
Length of bearing	13 $\frac{3}{8}$ "	14 $\frac{3}{8}$ "	15 $\frac{3}{8}$ "	16 $\frac{3}{8}$ "	17 $\frac{3}{8}$ "	20 $\frac{3}{8}$ "	22 $\frac{3}{8}$ "
From bottom to center of shaft	4 $\frac{3}{8}$ "	4 $\frac{7}{8}$ "	5"	5 $\frac{3}{8}$ "	5 $\frac{7}{8}$ "	5 $\frac{7}{8}$ "	6 $\frac{3}{8}$ "



Single Brace



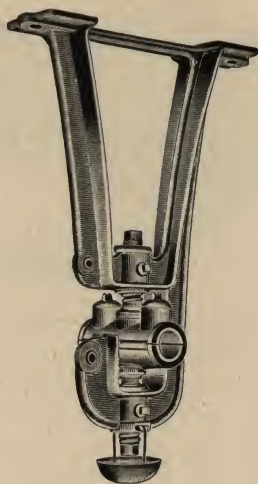
Double Brace

Adjustable Ball and Socket Drop Hangers

PLAIN BABBITTED BEARINGS

Size of Shaft	Drop in Inches												
	Brace	8	10	12	14	16	18	20	22	24	27	30	36
1 1/8	Single	3.55	3.70	3.90	4.15								
	Double	3.85	4.00	4.20	4.45								
1 3/8	Single	3.65	3.80	4.00	4.25	4.70	5.10	5.55					
	Double	3.95	4.10	4.30	4.55	5.10	5.50	5.95					
1 5/8	Single	4.55	4.70	4.90	5.15	5.25	5.65	6.10					
	Double	4.90	5.05	5.25	5.50	5.60	6.00	6.45					
1 7/8	Single	4.60	4.75	4.95	5.20	5.30	5.70	6.15	6.65	7.30	8.55	9.05	
	Double	5.00	5.15	5.35	5.60	5.70	6.10	6.55	7.05	7.70	8.95	9.45	
2 1/8	Single	6.35	6.85	7.00	7.30	7.55	7.80	8.30	8.75	9.15	10.40	11.65	
	Double	6.85	7.35	7.50	7.80	8.05	8.30	8.80	9.25	9.65	10.90	12.15	
2 3/8	Single	8.15	8.50	8.65	9.15	9.75	10.20	11.10	11.95	12.80	13.90	15.15	17.70
	Double	8.70	9.05	9.20	9.70	10.20	10.75	11.65	12.50	13.35	14.45	15.70	18.25
2 5/8	Single	8.80	9.15	9.30	9.80	10.40	10.85	11.75	12.65	13.45	14.55	15.80	18.35
	Double	9.35	9.70	9.85	10.35	10.95	11.40	12.30	13.20	14.00	15.10	16.35	18.90
2 7/8	Single	10.05	10.55	11.05	11.55	12.55	13.65	14.70	15.95	16.95	17.95	19.00	19.75
	Double	10.85	11.35	11.85	12.35	13.35	14.45	15.50	16.75	17.75	18.75	19.80	20.55
3 1/8	Single	12.00	12.50	13.00	13.50	14.50	15.60	16.65	17.90	18.90	19.90	20.90	21.70
	Double	12.80	13.30	13.80	14.30	15.30	16.40	17.45	18.70	19.70	20.70	21.75	22.50
3 3/8	Single			15.90	16.65	17.15	18.55	20.45	21.55	23.65	25.05	26.75	29.50
	Double			16.95	17.70	18.20	19.60	21.50	22.60	24.70	26.10	27.80	30.30
3 5/8	Single			16.35	17.10	17.60	19.00	20.90	22.00	24.10	25.50	27.20	29.70
	Double			17.40	18.15	18.65	20.05	21.95	23.05	25.15	26.55	28.25	30.75
3 7/8	Single			22.20	22.70	24.85	25.60	27.50	30.00	32.75	34.75	36.20	40.75
	Double			23.40	23.90	26.05	26.80	28.70	31.20	33.95	35.95	37.40	41.95
4 1/8	Single			25.45	25.95	28.10	28.85	30.75	33.25	36.00	38.00	39.45	44.00
	Double			26.65	27.15	29.30	30.05	31.95	34.45	37.20	39.20	40.65	45.20
4 3/8	Single					31.15	32.40	35.65	38.15	40.90	42.15	43.70	49.65
	Double					32.70	34.95	37.20	39.70	42.45	43.70	45.25	51.20
4 5/8	Single					32.40	34.65	36.90	39.40	42.15	43.40	44.95	50.90
	Double					33.95	36.20	38.45	40.95	43.70	44.95	46.50	52.45
4 7/8	Single					37.40	41.10	43.35	45.50	46.95	49.50	51.15	56.25
	Double					39.35	43.05	45.30	47.45	48.90	51.45	53.10	61.20
4 9/8	Single					40.45	44.15	46.40	48.55	50.00	52.55	54.20	62.30
	Double					42.40	46.10	48.35	50.50	51.95	54.50	56.15	64.25

Length of bearing equals four times diameter of shaft.



Single Brace

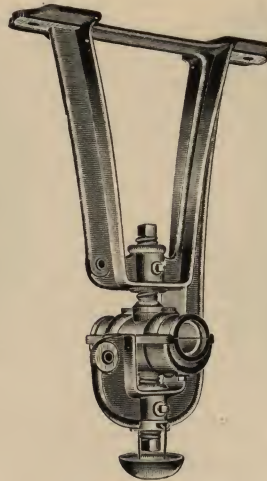
Adjustable Ball and Socket Drop Hangers

SELF-OILING BABBITTED BEARINGS

Size of Shaft	Drop in Inches												
	Brace	8	10	12	14	16	18	20	22	24	27	30	36
1½	Single	3.70	3.85	4.05	4.30								
	Double	4.00	4.15	4.35	4.60								
1¾	Single	3.85	4.00	4.15	4.40	4.50	4.85	5.30					
	Double	4.15	4.30	4.50	4.75	4.85	5.25	5.70					
1⅞	Single	4.85	5.00	5.20	5.45	5.60	5.95	6.40					
	Double	5.25	5.40	5.60	5.85	5.95	6.35	6.80					
1⅞	Single	5.00	5.15	5.30	5.55	5.70	6.05	6.50	6.95	7.60	8.85	9.35	
	Double	5.35	5.50	5.70	5.95	6.05	6.45	6.90	7.35	8.00	9.25	9.75	
1⅞	Single	6.85	7.30	7.45	7.75	8.00	8.25	8.75	9.20	9.60	10.85	12.10	
	Double	7.30	7.80	7.95	8.25	8.50	8.75	9.25	9.70	10.10	11.35	12.60	
2⅞	Single	8.75	9.10	9.20	9.70	10.30	10.75	11.65	12.50	13.35	14.45	15.70	18.25
	Double	9.25	9.60	9.75	10.25	10.85	11.80	12.20	13.05	13.90	15.00	16.25	18.80
2⅞	Single	9.50	9.85	10.00	10.50	11.10	11.55	12.45	13.35	14.15	15.25	16.50	19.05
	Double	10.05	10.40	10.55	11.05	11.65	12.10	13.00	13.90	14.70	15.80	17.05	19.60
2½	Single	10.90	11.40	11.85	12.35	13.35	14.45	15.50	16.75	17.75	18.75	19.80	20.55
	Double	11.65	12.15	12.65	13.15	14.15	15.25	16.30	17.55	18.55	19.55	20.60	21.35
2½	Single	13.10	13.65	14.15	14.65	15.65	16.75	17.80	19.05	20.05	21.05	22.10	22.85
	Double	13.95	14.45	14.95	15.45	16.45	17.55	18.60	19.85	20.85	21.85	22.90	23.65
3⅞	Single		16.75	17.30	18.05	18.55	19.95	21.85	22.95	25.05	26.45	28.15	30.65
	Double		17.80	18.35	19.10	19.60	21.00	22.90	24.00	26.10	27.50	29.20	31.70
3⅞	Single		17.20	17.75	18.60	19.00	20.40	22.30	23.40	25.50	26.90	28.60	31.10
	Double		18.25	18.80	19.65	20.05	21.45	23.35	24.45	26.55	27.95	29.65	32.15
3½	Single			23.75	24.25	26.40	27.15	29.05	31.55	34.30	36.30	37.75	42.30
	Double			24.05	25.45	27.60	28.35	30.25	32.75	35.50	37.50	38.95	43.50
3½	Single			27.20	27.70	29.85	30.60	32.50	35.00	37.75	39.75	41.20	45.75
	Double			28.40	28.90	31.05	31.80	33.70	36.20	38.95	40.95	42.40	46.95
4⅞	Single					33.15	35.40	37.65	40.15	42.90	44.15	46.70	51.65
	Double					34.70	36.95	39.20	41.70	44.45	45.70	47.25	53.20
4⅞	Single					36.70	36.95	39.20	41.70	44.45	45.70	47.25	53.20
	Double					36.25	38.50	40.75	43.25	46.00	47.25	48.80	54.75
4½	Single					40.00	43.70	45.95	48.10	49.55	52.10	53.75	61.85
	Double					41.95	45.65	47.90	50.05	51.50	54.05	55.70	63.80
4½	Single					43.45	47.15	49.40	51.55	53.00	55.55	57.20	65.30
	Double					45.40	49.10	51.35	53.50	54.95	57.50	59.15	67.25

Length of bearing equals four times diameter of shaft.

Cut shows single brace hanger. This can be converted into a double brace hanger by inserting links shown by cut on page 183.



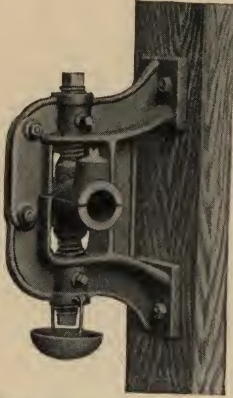
Single Brace

Adjustable Ball and Socket Drop Hangers

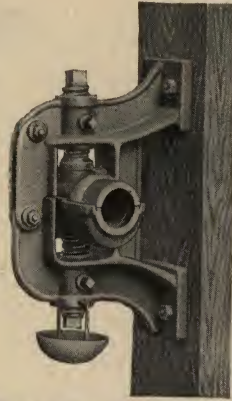
RING OILING BABBITTED BEARINGS

Size of Shaft	Brace	Drop in Inches											
		8	10	12	14	16	18	20	22	24	27	30	36
1 1/8	Single	4.55	4.70	4.90	5.15	5.55	5.85	6.30	6.70	7.05	7.45	7.85	8.30
	Double	4.95	5.10	5.30	5.55	5.85	6.25	6.70	7.05	7.45	7.85	8.30	8.75
1 1/4	Single	4.75	4.90	5.10	5.35	5.75	6.15	6.60	7.00	7.40	7.80	8.20	8.65
	Double	5.15	5.30	5.50	5.75	6.15	6.60	7.00	7.40	7.80	8.20	8.65	9.10
1 3/8	Single	5.50	5.65	5.85	6.10	6.50	6.90	7.30	7.70	8.10	8.50	8.90	9.35
	Double	5.90	6.05	6.25	6.50	6.90	7.30	7.70	8.10	8.50	8.90	9.35	9.80
1 1/2	Single	5.75	5.90	6.10	6.35	6.75	7.15	7.55	7.95	8.35	8.75	9.15	9.60
	Double	6.15	6.30	6.50	6.75	7.15	7.55	7.95	8.35	8.75	9.15	9.60	10.05
1 5/8	Single	8.50	9.00	9.15	9.45	9.70	9.95	10.45	10.90	11.30	11.80	12.25	12.70
	Double	9.00	9.50	9.65	9.95	10.20	10.45	10.95	11.40	11.80	12.35	12.80	13.30
2 1/8	Single	10.40	10.75	10.90	11.40	12.00	12.45	13.35	14.20	15.05	15.85	16.65	17.45
	Double	10.95	11.30	11.45	11.95	12.55	13.00	13.90	14.75	15.60	16.40	17.20	18.00
2 1/4	Single	11.05	11.40	11.55	12.05	12.65	13.10	14.00	14.90	15.70	16.50	17.30	18.10
	Double	11.60	11.95	12.10	12.60	13.20	13.65	14.55	15.45	16.25	17.05	17.85	18.65
2 1/2	Single	13.00	13.50	14.00	14.50	15.50	16.00	17.65	18.90	19.90	20.90	21.95	23.00
	Double	13.80	14.30	14.80	15.30	16.30	17.40	18.45	19.70	21.00	22.30	23.60	24.90
2 3/8	Single	15.75	16.25	16.75	17.25	18.25	19.35	20.40	21.65	22.65	23.65	24.70	25.85
	Double	16.55	17.05	17.55	18.05	19.05	20.15	21.20	22.45	23.45	24.45	25.50	26.65
3 1/8	Single	24.05	24.60	25.35	25.85	27.25	28.15	30.25	32.35	33.75	35.15	36.55	37.95
	Double	25.10	25.65	26.40	26.90	28.30	29.20	31.30	33.40	34.80	36.20	37.60	39.00
3 1/4	Single	26.50	27.05	27.80	28.30	29.70	31.60	32.70	34.80	36.20	37.60	39.00	40.40
	Double	27.55	28.10	28.85	29.35	30.75	32.65	33.75	35.85	37.25	38.65	40.05	41.45
3 1/2	Single	29.80	31.35	31.85	34.00	34.75	36.65	39.15	41.90	43.90	45.85	47.80	49.75
	Double	31.00	32.55	33.05	35.20	35.95	37.85	40.35	43.10	45.10	47.05	49.00	50.95
3 3/8	Single	31.60	33.15	33.65	35.80	36.55	38.45	40.95	43.70	45.70	47.65	49.60	51.55
	Double	32.80	34.35	34.85	37.00	37.75	39.65	42.15	44.90	46.90	48.85	50.80	52.75
4 1/8	Single	36.65	38.60	40.85	43.10	45.60	48.35	51.10	52.35	53.90	55.45	56.95	58.45
	Double	38.20	40.15	42.40	44.65	47.15	49.90	51.15	52.70	54.20	55.70	57.20	58.70
4 1/4	Single	39.40	41.35	43.60	45.85	48.35	51.10	52.35	53.90	55.45	56.95	58.45	59.95
	Double	40.95	42.90	45.15	47.40	49.90	52.65	53.90	55.45	56.95	58.45	59.95	61.45
4 1/2	Single	48.65	52.35	54.60	56.75	58.20	60.15	62.70	64.35	65.90	67.45	68.95	70.50
	Double	50.60	54.30	56.55	58.70	60.15	62.70	64.35	65.90	67.45	68.95	70.50	72.05
4 3/8	Single	53.80	57.50	59.75	61.90	63.35	65.80	67.85	69.35	70.85	72.35	73.85	75.35
	Double	55.75	59.45	61.70	63.85	65.30	67.80	69.35	70.85	72.35	73.85	75.35	76.85

For length of bearing, see table at bottom of page 182.
 Cut shows single brace Hanger. This can be converted into a double brace Hanger by inserting links shown by cut on page 183.



Self Oiling, Double Brace



Ring Oiling, Double Brace

Adjustable Ball and Socket Post Hangers

PLAIN BEARINGS

Size	1 $\frac{3}{8}$	1 $\frac{7}{8}$	1 $\frac{1}{2}$	1 $\frac{1}{8}$	2 $\frac{1}{8}$	2 $\frac{7}{8}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$
Price, double brace	4.50	5.50	5.60	7.15	9.75	10.40	13.00	14.95
Price, single brace	4.10	5.10	5.20	6.65	9.20	9.85	12.20	14.15
Length of bearing	5"	6"	7"	8"	9"	10"	11"	12"
From post to center of shaft	6 $\frac{3}{4}$ "	6 $\frac{1}{2}$ "	6 $\frac{3}{4}$ "	6 $\frac{1}{2}$ "	6 $\frac{3}{4}$ "	6 $\frac{3}{4}$ "	6 $\frac{3}{4}$ "	6 $\frac{3}{4}$ "
Size	3 $\frac{1}{8}$	3 $\frac{7}{8}$	3 $\frac{1}{2}$	3 $\frac{1}{8}$	4 $\frac{1}{8}$	4 $\frac{7}{8}$	4 $\frac{1}{2}$	4 $\frac{3}{4}$
Price, double brace	19.00	19.45	25.45	28.70	32.85	34.10	43.35	46.40
Price, single brace	17.95	18.40	24.25	27.50	31.30	32.55	41.40	44.45
Length of bearing	13"	14"	15"	16"	17"	18"	19"	20"
From post to center of shaft	8"	8"	8"	8"	9 $\frac{1}{2}$ "	9 $\frac{1}{2}$ "	9 $\frac{1}{2}$ "	9 $\frac{1}{2}$ "

Adjustable Ball and Socket Post Hangers

SELF OILING BEARINGS

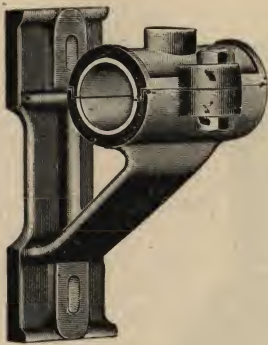
Size	1 $\frac{3}{8}$	1 $\frac{7}{8}$	1 $\frac{1}{2}$	1 $\frac{1}{8}$	2 $\frac{1}{8}$	2 $\frac{7}{8}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$
Price, double brace	4.70	5.85	5.95	7.60	10.30	11.10	13.80	16.10
Price, single brace	4.30	5.45	5.55	7.10	9.75	10.55*	13.00	15.30
Length of bearing	5"	6"	7"	8"	9"	10"	11"	12"
From post to center of shaft	6 $\frac{3}{4}$ "	6 $\frac{1}{2}$ "	6 $\frac{3}{4}$ "	6 $\frac{1}{2}$ "	6 $\frac{3}{4}$ "	6 $\frac{3}{4}$ "	6 $\frac{3}{4}$ "	6 $\frac{3}{4}$ "
Size	3 $\frac{1}{8}$	3 $\frac{7}{8}$	3 $\frac{1}{2}$	3 $\frac{1}{8}$	4 $\frac{1}{8}$	4 $\frac{7}{8}$	4 $\frac{1}{2}$	4 $\frac{3}{4}$
Price, double brace	20.40	20.85	27.50	31.40	34.85	36.40	45.95	49.40
Price, single brace	19.35	19.80	26.30	30.20	33.30	34.85	44.00	47.45
Length of bearing	13"	14"	15"	16"	17"	18"	19"	20"
From post to center of shaft	8"	8"	8"	8"	9 $\frac{1}{2}$ "	9 $\frac{1}{2}$ "	9 $\frac{1}{2}$ "	9 $\frac{1}{2}$ "

Adjustable Ball and Socket Post Hangers

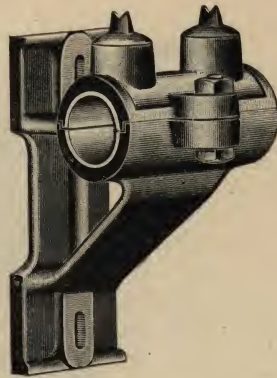
RING OILING BEARINGS

Size	1 $\frac{3}{8}$	1 $\frac{7}{8}$	1 $\frac{1}{2}$	1 $\frac{1}{8}$	2 $\frac{1}{8}$	2 $\frac{7}{8}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$
Price, double brace	5.70	6.50	6.75	9.30	12.00	12.65	15.95	18.70
Price, single brace	5.30	6.10	6.35	8.80	11.45	12.10	15.15	17.90
Length of bearing	6 $\frac{3}{4}$ "	7 $\frac{3}{4}$ "	8 $\frac{3}{4}$ "	9 $\frac{3}{4}$ "	10 $\frac{3}{4}$ "	11 $\frac{3}{4}$ "	12 $\frac{3}{4}$ "	13 $\frac{3}{4}$ "
From post to center of shaft	6 $\frac{3}{4}$ "	6 $\frac{3}{4}$ "	6 $\frac{3}{4}$ "	6 $\frac{3}{4}$ "	6 $\frac{3}{4}$ "	6 $\frac{3}{4}$ "	6 $\frac{3}{4}$ "	6 $\frac{3}{4}$ "
Size	3 $\frac{1}{8}$	3 $\frac{7}{8}$	3 $\frac{1}{2}$	3 $\frac{1}{8}$	4 $\frac{1}{8}$	4 $\frac{7}{8}$	4 $\frac{1}{2}$	4 $\frac{3}{4}$
Price, double brace	27.70	30.15	34.60	36.40	40.30	43.05	54.00	59.75
Price, single brace	26.65	29.10	33.40	35.20	38.75	41.50	52.05	57.80
Length of bearing	14 $\frac{3}{4}$ "	15 $\frac{3}{4}$ "	16 $\frac{3}{4}$ "	17 $\frac{3}{4}$ "	18 $\frac{3}{4}$ "	20 $\frac{3}{4}$ "	21 $\frac{3}{4}$ "	22 $\frac{3}{4}$ "
From post to center of shaft	8"	8"	8"	8"	9 $\frac{1}{2}$ "	9 $\frac{1}{2}$ "	9 $\frac{1}{2}$ "	9 $\frac{1}{2}$ "

Cuts show double brace hangers. These can be converted into single brace hangers by omitting connecting links shown in cuts.



Plain Bearing



Self Oiling

Rigid Post Hangers or Bracket Boxes

PLAIN BEARINGS

Size	1 $\frac{3}{8}$	1 $\frac{7}{8}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	2 $\frac{3}{8}$	2 $\frac{7}{8}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$
Price	3.50	3.60	4.10	5.45	7.25	8.35	9.15	10.35
Length of bearing	3 $\frac{3}{4}$ "	4 $\frac{1}{2}$ "	5 $\frac{1}{2}$ "	6"	6 $\frac{3}{4}$ "	7 $\frac{1}{2}$ "	8 $\frac{1}{2}$ "	9"
From post to center of shaft	2 $\frac{3}{4}$ "	3 $\frac{3}{8}$ "	4"	4 $\frac{1}{2}$ "	5 $\frac{1}{2}$ "	5 $\frac{3}{8}$ "	6 $\frac{1}{2}$ "	6 $\frac{3}{4}$ "
Size	3 $\frac{1}{8}$	3 $\frac{7}{8}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$	4 $\frac{1}{8}$	4 $\frac{7}{8}$	4 $\frac{1}{2}$	4 $\frac{3}{4}$
Price	12.70	14.10	18.40	22.40	27.15	31.90	36.50	40.10
Length of bearing	10"	10 $\frac{3}{4}$ "	11 $\frac{1}{2}$ "	12"	12 $\frac{3}{4}$ "	13 $\frac{1}{2}$ "	14 $\frac{1}{2}$ "	15"
From post to center of shaft	7"	7"	7"	7"	7"	7"	7"	7"

Rigid Post Hangers or Bracket Boxes

SELF OILING BEARINGS

Size	1 $\frac{3}{8}$	1 $\frac{7}{8}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	2 $\frac{3}{8}$	2 $\frac{7}{8}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$
Price	3.85	4.15	4.55	5.80	7.55	8.65	9.75	11.70
Length of bearing	3 $\frac{3}{4}$ "	4 $\frac{1}{2}$ "	5 $\frac{1}{2}$ "	6"	6 $\frac{3}{4}$ "	7 $\frac{1}{2}$ "	8 $\frac{1}{2}$ "	9"
From post to center of shaft	2 $\frac{3}{4}$ "	3 $\frac{3}{8}$ "	4"	4 $\frac{1}{2}$ "	5 $\frac{1}{2}$ "	5 $\frac{3}{8}$ "	6 $\frac{1}{2}$ "	6 $\frac{3}{4}$ "
Size	3 $\frac{1}{8}$	3 $\frac{7}{8}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$	4 $\frac{1}{8}$	4 $\frac{7}{8}$	4 $\frac{1}{2}$	4 $\frac{3}{4}$
Price	13.35	17.80	22.35	27.10	31.85	36.60	41.20	44.80
Length of bearing	10"	10 $\frac{3}{4}$ "	11 $\frac{1}{2}$ "	12"	12 $\frac{3}{4}$ "	13 $\frac{1}{2}$ "	14 $\frac{1}{2}$ "	15"
From post to center of shaft	7"	7"	7"	7"	7"	7"	7"	7"



Adjustable Step Bearings

Size	1 $\frac{3}{8}$	1 $\frac{7}{8}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	2 $\frac{3}{8}$	2 $\frac{7}{8}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	3 $\frac{1}{8}$	3 $\frac{7}{8}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$
Price	6.00	6.75	7.80	9.20	11.00	13.00	16.00	20.00	22.80	26.20	29.90	36.00

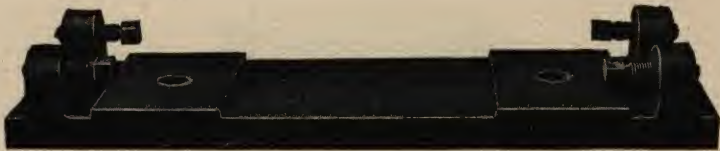


Special Floor Stands

WITHOUT PILLOW BLOCKS, BUT INCLUDING BOLTS TO FASTEN PILLOW BLOCKS

Diameter of Shaft	Height to Center of Shaft			
	30"	32"	34"	36"
2½"	33.05	33.25	33.40	33.60
3½"	34.25	34.45	34.60	34.80
3¾"	35.45	35.65	35.80	36.00
3½"	36.65	36.85	37.00	37.20
3½"	37.85	38.05	38.20	38.40
4½"	39.05	39.25	39.40	39.60
4½"	40.25	40.45	40.60	40.80
4½"	41.45	41.65	41.80	42.00
4½"	42.65	42.85	43.00	43.20
5½"	46.80	47.15	47.60	48.00
5½"	51.60	51.95	52.40	52.80

For prices of pillow blocks, see pages 181 and 182.



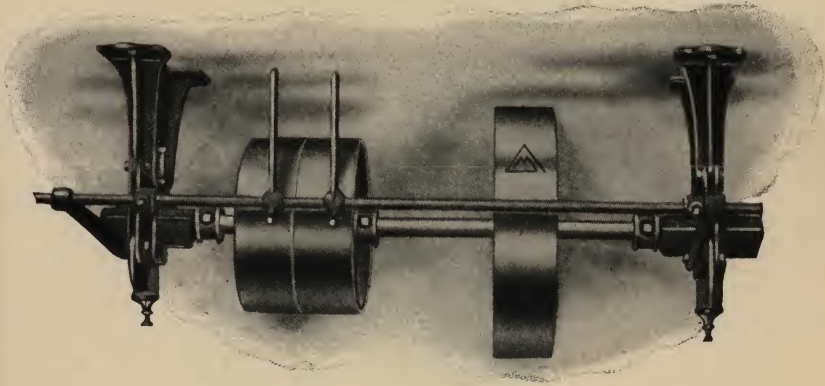
Base Plates For Pillow Blocks
SCREW ADJUSTMENT

Size	2½	3½	3½	3½	4½	4½	5½
Price	10.00	12.00	14.00	16.00	18.00	22.50	27.00
Size	5½	6½	6½	7½	8	8½	9
Price	31.50	33.75	36.00	39.00	42.00	45.00	50.00



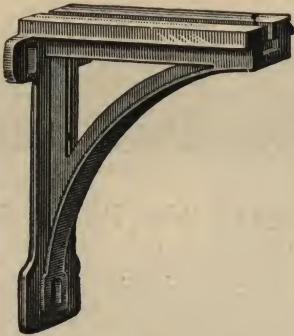
Base Plates For Pillow Blocks
WEDGE ADJUSTMENT

Size	2½	3½	3½	3½	4½	4½	5½	5½	6½
Price	33.00	40.00	44.00	48.00	56.00	66.00	72.00	78.00	82.00
Size	6½	7½	8	8½	9	9½	10½	12	
Price	88.00	92.00	96.00	100.00	110.00	120.00	132.00	146.00	



Countershafts

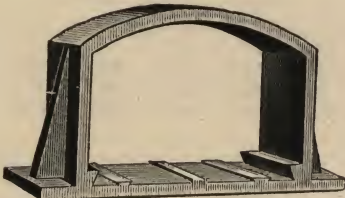
The cut shows countershaft with tight and loose pulleys and single driver. We are also prepared to furnish other styles with cone pulleys, friction clutches, etc.
Prices on application.



Wall Brackets

Size of shaft -----	1 ³ / ₈	1 ⁷ / ₈	1 ¹ / ₂	1 ⁵ / ₈	2 ³ / ₈	2 ⁷ / ₈	2 ¹ / ₂	2 ³ / ₈
Center of shaft to back of bracket	12"-----	3.60	4.00	4.90	5.40	6.35	6.90	7.70
	14"-----	3.90	4.30	5.20	5.80	6.85	7.50	8.40
	16"-----	4.20	4.60	5.50	6.10	7.20	7.90	8.90
	18"-----	4.50	4.90	5.80	6.40	7.55	8.40	9.50
Size of shaft -----	3 ³ / ₈	3 ⁷ / ₈	3 ¹ / ₂	3 ⁵ / ₈	4 ³ / ₈	4 ⁷ / ₈	4 ¹ / ₂	4 ³ / ₈
Center of shaft to back of bracket	12"-----	9.50	10.45	11.40	12.60	14.40	16.75	18.60
	14"-----	10.10	11.05	12.00	13.50	15.30	17.40	19.80
	16"-----	10.55	11.75	12.60	14.10	15.90	18.30	20.70
	18"-----	11.10	12.60	13.50	15.00	16.80	19.20	21.60

Pillow Blocks are not included in the above prices.



Wall Box Frames

Size of shaft----	1 ¹ / ₈	2 ¹ / ₈	2 ³ / ₈	2 ¹ / ₂	2 ⁵ / ₈	3 ³ / ₈	3 ⁷ / ₈	3 ¹ / ₂	3 ⁵ / ₈	4 ³ / ₈	4 ⁷ / ₈	4 ¹ / ₂	5 ³ / ₈	5 ¹ / ₂
Price -----	6.60	7.80	9.10	10.55	12.30	14.10	15.30	16.50	18.60	19.80	21.00	24.00	27.30	30.00

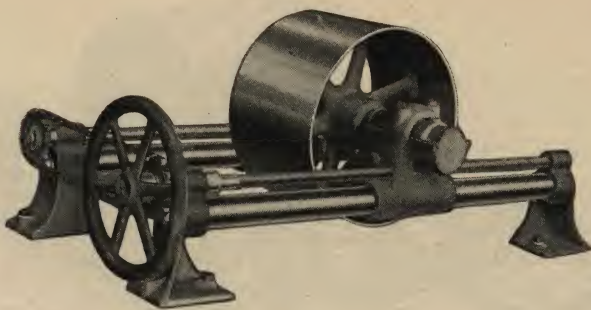
Pillow Blocks are not included in the above prices.



Pulley Flanges

BORED, SET SCREWED, OR KEY SEATED

Diameter -----	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
Price -----each	2.00	2.25	2.50	2.75	3.00	3.50	4.00	4.50	5.00	6.50

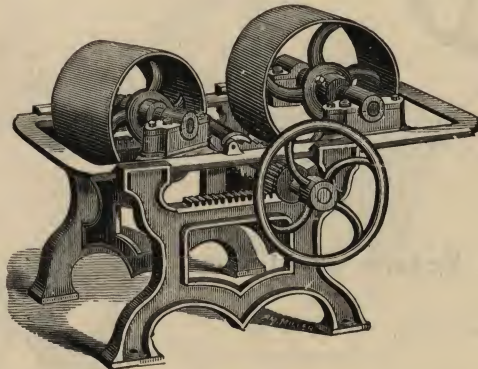


Screw Belt Tighteners
HORIZONTAL OR VERTICAL

This tightener is intended particularly for heavy work. The shaft runs in ball and socket bearings, which renders it universal and adjustable in every direction. The adjustment is held rigidly. The bearings are self-oiling. Ring oiling bearings can be furnished at a slight additional cost. We can also furnish this style of tightener with any modifications that may be desired.

Size of Pulley	Price	Size of Pulley	Price
20 x 9	70.00	42 x 18	160.00
20 x 11	75.00	42 x 20	165.00
20 x 13	80.00	42 x 22	170.00
24 x 11	85.00	42 x 24	175.00
24 x 13	90.00	42 x 26	185.00
24 x 15	95.00	42 x 28	200.00
24 x 17	100.00	42 x 30	210.00
30 x 13	110.00	42 x 32	220.00
30 x 15	115.00	48 x 22	190.00
30 x 17	120.00	48 x 24	195.00
36 x 18	140.00	48 x 26	205.00
36 x 20	145.00	48 x 28	215.00
36 x 22	150.00	48 x 30	225.00
36 x 24	155.00	48 x 32	235.00
36 x 26	165.00	48 x 34	245.00

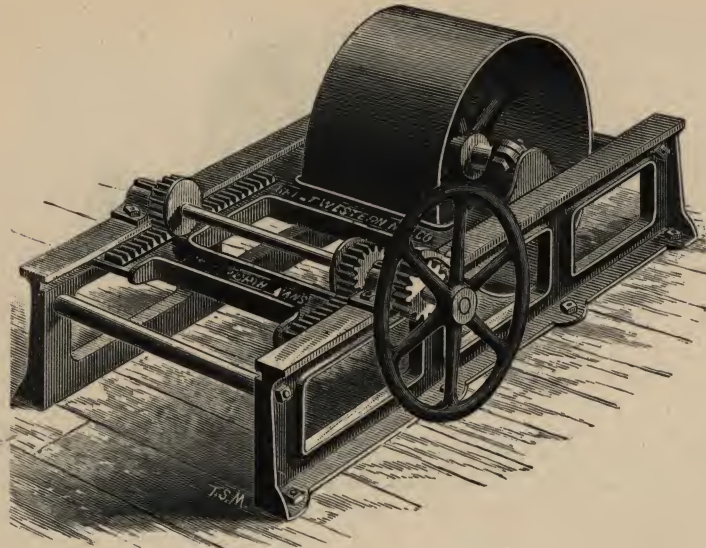
Prices of intermediate or larger sizes given upon receipt of specifications.



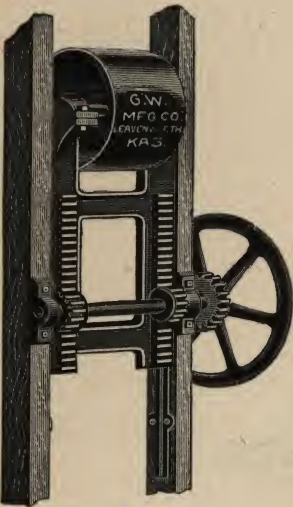
Style D

Double Tightener

Pulleys 8" face, 10" to 12" diameter, price..... 40.00



Style A. With Iron Side Frame.



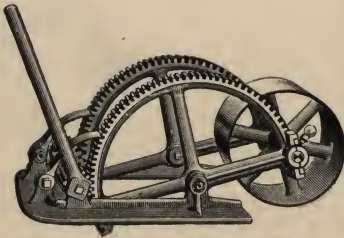
Style B.

Belt Tighteners

Number	Size of Pulley	Prices	
		Style A. With Iron Side Frame	Style B. Without Iron Side Frame
00	10 x 7	35.00	20.00
0	12 x 8	40.00	25.00
1	12 x 9	42.50	27.50
2	14 x 10	45.00	30.00
3	16 x 12	52.50	37.50
4	18 x 14	55.00	40.00
5	20 x 16	65.00	47.50
6	24 x 18	70.00	50.00
7	26 x 20	100.00	70.00
8	28 x 22	120.00	90.00
9	28 x 24	135.00	100.00
10	30 x 26	160.00	120.00
11	36 x 34	275.00	225.00

Spur Segment Rotary Tighteners

Number	Size of Pulley	Price
1	12 x 9	30.00
2	14 x 10	35.00
3	16 x 12	40.00
4	18 x 14	45.00
5	20 x 16	50.00



Style C.



STYLE H.

Angle Iron Hanger Tighteners

This hanger tightener, which has an independent adjustment, both horizontal and vertical, is designed for use on slow side drives of roller mills. The above cut represents one tightener as used for the slow sides of two roller mills. When used for the slow side of only one roller mill, one pulley is omitted. The tightener should be hung from the floor overhead, and the main roll line shaft should pass through or between the forks of the hanger. The idler pulleys are fitted with loose sleeves running on gudgeons lubricated by means of compression grease cups fitted to the ends of gudgeons. The pulleys are made of any desired diameter to accommodate differential speed required. A hand wheel or wrench is furnished for adjusting the tightener. The regular drop to center of pulley is 4' 6". This can be increased or decreased. These tighteners are used in connection with belts not over 7" wide.

Tightener for single Pulley	45.00
Tightener for two pulleys	50.00

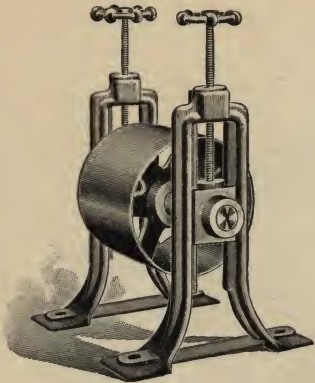
Above list prices are exclusive of pulleys.



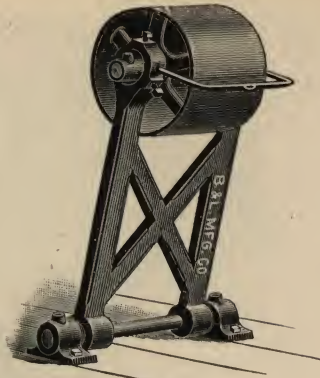
STYLE I.

Roller Mill Tighteners

No.	Size of Pulley	Price with Ring Oiling Bearings
1	16x6½ or 6¾	28.00
2	18x6¾ or 7½	33.00
3	20x7¾ or 8¾	37.00



Floor Tightener



Swing Tightener

Adjustable Floor Tighteners

Number	0	1	2	3	4	5
Price	11.00	12.00	14.00	16.00	18.00	20.00
Size Pulley	8 x 4	10 x 5	12 x 6	14 x 7	16 x 8	18 x 9

Adjustable Swing Tighteners

Number	00	0	1	2	3	4	5
Price	20.00	25.00	27.50	30.00	37.50	40.00	47.50
Size Pulley	10 x 7	12 x 8	12 x 9	14 x 10	16 x 12	18 x 14	20 x 16



No. 1 and No. 2



No. 3

Sprocket Tighteners

No. 1.	For No. 62 link belt and under	6.65
No. 2.	For link belt larger than No. 62	10.00
No. 3.	Floor Sprocket Tightener	10.65



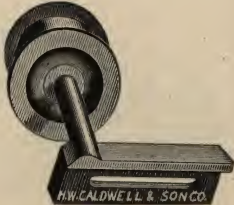
Joist Idler

Joist Idlers

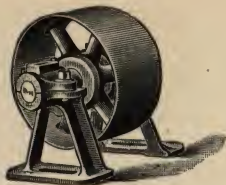
Number	Price	Size of Pulley
1	12.00	8 x 5
2	12.50	8 x 6
3	14.00	10 x 7
4	15.00	10 x 8

Chain Roller Idler

Price ----- 4.00



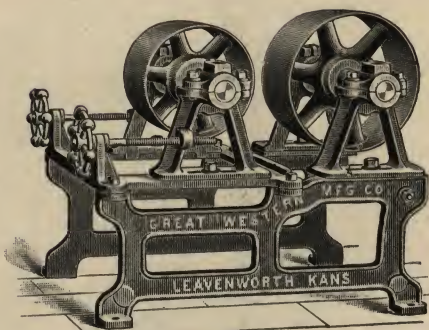
Chain Idler



Style E.



Style F.



Style G, with Iron Frame

Idlers For Quarter Twist Drives

PULLEYS 5" FACE, 8" TO 10" DIAMETER

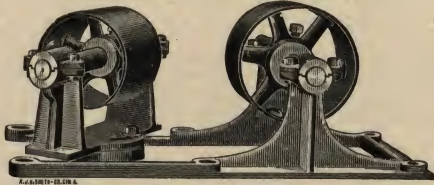
Style E	-----	10.00
Style F	-----	15.00
Style G, with iron side frame	-----	35.00

The above Idlers will carry pulleys up to 8" face



Single Idlers

Number	1	2	3	4
Price	10.00	11.00	12.00	14.00
Size Pulley	8 x 6	10 x 8	12 x 10	12 x 12



Adjustable Double Idlers

Number	1	2	3	4
Price	17.00	18.00	20.00	22.00
Size Pulleys	8 x 6 and 10 x 6	10 x 8 and 12 x 8	10 x 10 and 12 x 10	12 x 11 and 14 x 11



Universal Mule Stands

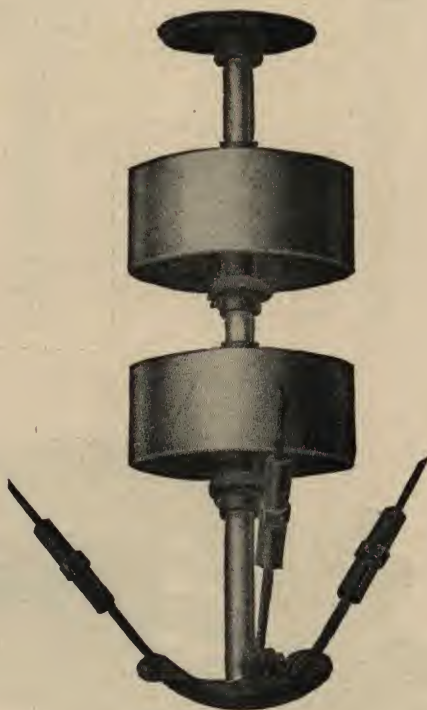
ADJUSTABLE IN EVERY DIRECTION

The shafts on which the mule pulleys run are fitted with a ball and socket on the lower end, which permits the shaft to be set at any angle and in any direction.

These stands can be used in connection with shafts which are not on the same plane.

Width of belt.....	3"	4"	5"	6"	7"	8"	9"	10"	12"
Diameter of shaft.....	1 $\frac{1}{8}$	1 $\frac{1}{2}$	1 $\frac{3}{8}$	2 $\frac{1}{8}$	2 $\frac{3}{8}$	2 $\frac{7}{8}$	2 $\frac{7}{8}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$
Size of Pulleys.....	10 x 4	10 x 5	12 x 6	14 x 7	14 x 8	16 x 9	16 x 10	18 x 11	20 x 13
Price	50.60	51.70	62.70	68.20	70.40	83.60	88.00	101.20	123.20

Prices include one main shaft, two arms, two pulleys with sleeves and small shafts for same, four set collars, top and bottom plates and two guy rods.



Plain Mule Pulley Stands

Width of belt.....	3"	4"	5"	6"	7"	8"	9"	10"	12"
Diameter of shaft.....	1 $\frac{1}{8}$ "	1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "	1 $\frac{7}{8}$ "	1 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "	2 $\frac{1}{8}$ "	2 $\frac{1}{4}$ "
Diameter of Pulleys.....	10"	10"	12"	14"	14"	16"	16"	18"	20"
Price	28.05	31.35	37.40	41.80	44.00	50.60	52.80	60.50	79.20

Prices include one shaft 4 feet long, two pulleys with face 1 inch wider than belt, two sleeves, two set collars, top and bottom plates, and three guy rods.



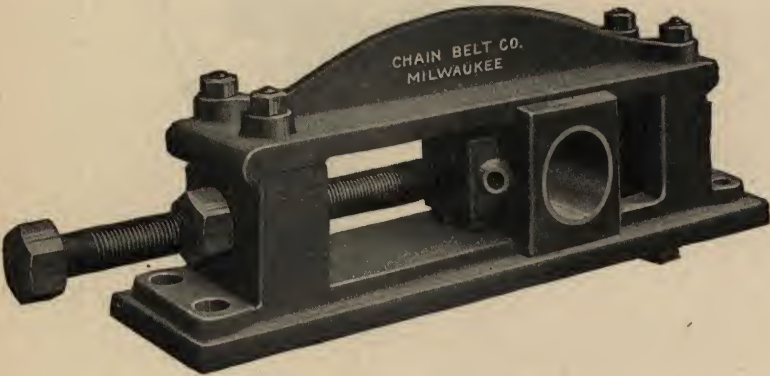
Style A.

Take-Up Boxes
MADE TO PUSH OR PULL

Diameter of Shaft, Inches	Length of Adjustment, Inches	Price Each, Style A or B.
1 ³ / ₈	6	3.35
1 ¹ / ₂	6	3.90
1 ⁷ / ₈	9	4.25
1 ¹ / ₂	9	6.00
1 ⁷ / ₈	12	6.50
1 ¹ / ₂	18	7.50
2 ¹ / ₈	12	8.00
2 ¹ / ₂	18	9.50
2 ⁷ / ₈	24	11.00
2 ¹ / ₂	12	10.00
2 ⁷ / ₈	18	11.50
2 ¹ / ₂	24	13.00
2 ⁷ / ₈	18	12.50
2 ¹ / ₂	24	15.00
2 ⁷ / ₈	18	14.50
2 ¹ / ₂	24	17.00



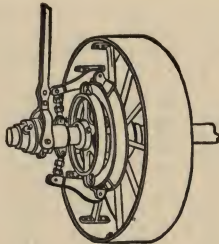
Style B.



Take-Up Boxes For Extra Heavy Work
STYLE D.

Size of Shaft	Length of Movement				Size of Shaft	Length of Movement		
	9"	12"	20"	36"		9"	12"	20"
2 ¹ / ₈	18.00	18.00	23.00	30.00	3 ¹ / ₈			
2 ¹ / ₂	18.00	18.00	23.00	30.00	3 ¹ / ₂	20.00	26.00	29.00
2 ⁷ / ₈	18.00	18.00	23.00	30.00	3 ⁷ / ₈			
2 ¹ / ₂	18.00	18.00	23.00	30.00	3 ¹ / ₂	20.50	27.00	29.00

Friction Clutch Pulleys



27. inches on pulleys, 10 to 24 inches diameter, inclusive
28. inches on pulleys, 25 to 35 inches diameter, inclusive
32. inches on pulleys, 36 to 46 inches diameter, inclusive
37. inches on pulleys, 48 to 58 inches diameter, inclusive
41. inches on pulleys, 60 to 72 inches diameter, inclusive
51. inches on pulleys, 74 to 96 inches diameter, inclusive

An extra charge made for larger bores.
Levers and boxing are included in below mentioned prices.
Fulcrum Stands are not included in these prices.

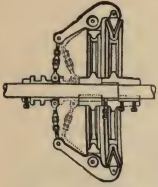
Diam.	Face	Space on Shaft	Price		Diam.	Face	Space on Shaft	Price		23	12	26	60.00	66.00
			Single Belt	Double Belt				Single Belt	Double Belt		14	28	65.00	72.00
											16	30	73.00	83.00
										18	34	80.00	90.00	
10	3	17	26.40	26.80	16	3	17	31.00	31.40	24	4	18	39.70	40.50
	4	18	27.50	28.00		4	18	32.40	32.90		5	19	43.80	46.00
	5	19	28.70	30.20		5	19	35.00	36.70		6	20	48.00	51.60
	6	20	30.50	32.70		6	20	39.00	40.70		8	22	53.00	57.40
	8	22	32.80	36.30		8	22	42.00	44.80		10	24	58.00	63.30
11	3	17	27.10	27.50	17	10	24	45.00	49.00	24	12	26	63.00	69.30
	4	18	28.20	28.60		12	26	49.00	54.60		14	28	68.00	75.30
	5	19	29.50	30.80		14	28	54.00	61.60		16	30	76.00	84.00
	6	20	31.30	34.00		16	30	60.00	66.00		18	34	84.00	92.50
	8	22	34.60	37.90		18	34	80.00	90.00		20	36	96.00	105.00
12	3	17	27.90	28.30	18	10	24	45.00	49.00	25	4	18	42.30	43.50
	4	18	29.00	29.40		12	26	49.00	54.60		5	19	46.70	49.10
	5	19	30.30	32.00		14	28	54.00	61.60		6	20	51.50	55.00
	6	20	32.40	35.40		16	30	60.00	66.00		8	22	57.00	61.00
	8	22	36.00	39.60		18	34	80.00	92.50		10	24	63.00	67.10
13	10	24	39.70	43.30	19	12	26	50.00	55.40	26	12	26	68.00	73.30
	3	17	28.60	29.00		14	28	54.50	62.40		14	28	73.00	79.60
	4	18	29.80	30.20		16	30	60.00	66.00		16	30	79.00	87.00
	5	19	31.20	33.50		18	34	80.00	92.50		18	34	87.00	96.00
	6	20	34.40	37.00		20	36	96.00	105.00		20	36	96.00	105.00
14	8	22	38.20	40.60	20	10	24	45.60	49.80	27	4	18	45.00	46.50
	10	24	41.00	44.30		12	26	52.50	57.20		5	19	50.00	53.00
	3	17	29.40	29.80		14	28	57.00	64.20		6	20	55.80	59.50
	4	18	30.70	31.10		16	30	61.50	71.30		8	22	61.00	65.25
	5	19	32.40	34.50		18	34	80.00	92.50		10	24	67.00	72.00
15	6	20	35.50	38.00	21	5	19	36.00	38.50	28	12	26	73.25	78.75
	8	22	39.00	41.50		6	20	40.00	42.60		14	28	80.00	85.50
	10	24	41.90	45.10		8	22	44.00	47.00		16	30	86.00	92.50
	12	26	44.50	48.80		10	24	48.00	52.00		18	34	94.00	101.00
	3	17	30.20	30.60		12	26	52.50	57.20		20	36	103.00	111.00
16	4	18	31.50	32.00	22	14	28	57.00	64.20	29	4	18	46.00	48.50
	5	19	32.40	34.50		16	30	61.50	71.30		5	19	52.00	55.00
	6	20	35.50	38.00		18	34	80.00	92.50		6	20	58.00	62.00
	8	22	39.00	41.50		20	36	96.00	105.00		8	22	64.00	69.25
	10	24	41.90	45.10		22	38	104.00	112.00		10	24	71.00	76.50
17	12	26	44.50	48.80	24	6	20	41.00	44.10	31	12	26	77.50	83.75
	3	17	29.40	29.80		8	22	45.00	48.70		14	28	83.00	90.00
	4	18	30.70	31.10		10	24	51.00	55.00		16	30	88.50	96.00
	5	19	32.40	34.50		12	26	55.00	61.40		18	34	98.00	106.00
	6	20	35.50	38.00		14	28	60.00	68.00		20	36	108.00	117.00
18	8	22	40.80	43.90	26	16	30	66.50	74.50	33	4	18	48.50	51.00
	10	24	42.90	47.90		18	34	80.00	92.50		5	19	54.00	57.00
	12	26	47.00	52.00		20	36	96.00	105.00		6	20	60.00	65.00
	3	17	30.20	30.60		22	38	104.00	112.00		8	22	66.00	71.00
	4	18	31.50	32.00		24	40	112.00	120.00		10	24	72.50	78.00
19	5	19	34.20	35.50	28	4	18	35.30	35.90	35	4	18	48.50	51.00
	6	20	37.30	39.10		5	19	37.80	40.40		5	19	54.00	57.00
	8	22	40.80	43.90		6	20	42.00	45.10		6	20	60.00	65.00
	10	24	42.90	47.90		8	22	47.00	51.00		8	22	66.00	71.00
	12	26	47.00	52.00		10	24	51.00	55.00		10	24	72.50	78.00

Friction Clutch Pulleys

Diam.	Face	Space on Shaft	Price		Diam.	Face	Space on Shaft	Price		Diam.	Face	Space on Shaft	Price	
			Single Belt	Double Belt				Single Belt	Double Belt				Single Belt	Double Belt
27	12	26	78.00	84.00	34	12	26	95.00	108.00	44	16	32	142.00	167.00
	14	28	84.50	91.00		14	28	105.00	119.00		18	34	159.00	184.00
	16	30	91.00	98.00		16	30	113.00	128.00		20	36	173.00	203.00
	18	34	101.00	109.00		18	34	124.00	140.00		22	38	193.00	223.00
	20	36	114.00	123.00		20	36	139.00	158.00		24	40	215.00	246.00
28	4	18	51.00	53.50	35	4	18	63.50	68.00	46	4	19	81.00	87.00
	5	19	56.00	59.50		5	19	69.00	75.00		5	20	88.00	95.50
	6	20	61.50	67.00		6	20	76.00	83.00		6	21	95.00	105.00
	8	22	67.00	73.00		8	22	81.00	89.00		8	23	104.00	115.00
	10	24	73.00	79.00		10	24	91.00	100.00		10	26	114.00	126.00
29	12	26	79.00	85.00	36	12	26	97.00	111.00	48	12	28	126.00	139.00
	14	28	86.00	95.00		14	28	107.00	122.00		14	30	140.00	156.00
	16	30	94.00	103.00		16	30	116.00	132.00		16	32	150.00	173.00
	18	34	104.00	116.00		18	34	127.00	144.00		18	34	166.00	190.00
	20	36	116.00	129.00		20	36	142.00	162.00		20	36	182.00	210.00
30	4	18	53.50	56.00	38	4	18	66.50	71.50	50	22	38	202.00	231.00
	5	19	58.00	62.00		5	19	74.50	80.00		24	40	226.00	259.00
	6	20	63.00	68.00		6	20	81.00	88.00		6	22	99.00	113.00
	8	22	68.00	74.00		8	22	87.00	95.00		8	24	113.00	127.00
	10	24	74.50	81.00		10	24	97.00	107.00		10	26	123.00	138.00
31	12	26	80.00	88.00	40	12	26	104.00	118.00	52	12	28	133.00	149.00
	14	28	89.00	98.00		14	28	113.00	128.00		14	30	150.00	167.00
	16	30	95.50	105.00		16	30	122.00	138.00		16	32	160.00	185.00
	18	34	107.00	120.00		18	34	133.00	150.00		18	34	176.00	202.00
	20	36	120.50	134.00		20	36	152.00	172.00		20	36	194.00	223.00
32	4	18	55.50	58.50	42	22	38	165.00	188.00	54	22	38	214.00	244.00
	5	19	59.00	63.50		24	40	175.00	205.00		24	41	238.00	276.00
	6	20	64.00	70.00		4	19	69.50	74.00		26	43	269.00	309.00
	8	22	70.00	76.50		5	20	77.00	82.00		28	45	306.00	344.00
	10	24	77.00	84.00		6	21	83.00	90.00		30	47	341.00	384.00
33	12	26	83.50	91.00	44	8	23	90.00	98.00	56	6	22	104.00	118.00
	14	28	93.00	101.00		10	26	101.00	110.00		8	24	117.00	132.00
	16	30	99.50	108.00		12	28	107.00	121.00		10	26	128.00	144.00
	18	34	111.00	124.00		14	30	118.00	134.00		12	28	188.00	155.00
	20	36	125.00	139.00		16	32	127.00	144.00		14	30	156.00	175.00
34	4	18	56.00	59.50	46	18	34	141.00	159.00	58	16	32	165.00	193.00
	5	19	60.50	65.00		20	36	156.00	181.00		18	34	182.00	211.00
	6	20	66.50	73.00		22	38	168.00	194.00		20	36	202.00	233.00
	8	22	72.00	79.00		24	40	183.00	214.00		22	38	224.00	256.00
	10	24	79.00	87.00		4	19	71.00	76.50		24	41	247.00	290.00
35	12	26	85.50	94.00	48	5	20	78.50	84.50	60	26	43	278.00	322.00
	14	28	95.00	104.00		6	21	86.00	93.00		28	45	314.00	359.00
	16	30	102.00	112.00		8	23	94.00	103.00		30	47	350.00	399.00
	18	34	114.00	128.00		10	26	104.00	114.00		6	22	108.00	122.00
	20	36	130.00	144.00		12	28	111.00	126.00		8	24	121.00	136.00
36	4	18	58.00	61.50	50	14	30	123.00	139.00	62	10	26	132.00	148.00
	5	19	63.00	67.50		16	32	135.00	152.00		12	28	143.00	160.00
	6	20	69.00	76.00		18	34	148.00	166.00		14	30	160.00	180.00
	8	22	74.00	82.00		20	36	163.00	188.00		16	32	170.00	198.00
	10	24	81.00	90.00		22	38	177.00	203.00		18	34	188.00	217.00
37	12	26	89.00	99.00	52	24	40	192.00	224.00	64	20	36	207.00	240.00
	14	28	97.50	108.00		4	19	73.50	79.50		22	38	233.00	266.00
	16	30	106.00	118.00		5	20	81.00	87.00		24	41	258.00	300.00
	18	34	118.00	133.00		6	21	89.00	96.00		26	43	287.00	332.00
	20	36	134.00	149.00		8	23	97.00	107.00		28	45	320.00	369.00
38	4	18	60.00	63.50	54	10	26	106.00	117.00	66	30	47	361.00	410.00
	5	19	65.00	70.00		12	28	116.00	129.00		6	22	112.00	126.00
	6	20	71.00	78.00		14	30	124.00	145.00		8	24	125.00	140.00
	8	22	77.00	85.00		16	32	137.00	160.00		10	26	136.00	152.00
	10	24	84.50	93.00		18	34	150.00	174.00		12	28	146.00	163.00
39	12	26	92.00	104.00	56	20	36	169.00	196.00	68	14	30	165.00	183.00
	14	28	103.00	115.00		22	38	186.00	214.00		16	32	175.00	204.00
	16	30	111.00	124.00		24	40	203.00	235.00		18	34	194.00	224.00
	18	34	121.00	135.00		4	19	77.00	83.00		20	36	214.00	249.00
	20	36	137.00	154.00		5	20	84.00	91.00		22	38	244.00	280.00
40	4	18	61.50	65.50	58	6	21	91.00	100.00	70	24	41	270.00	311.00
	5	19	66.50	72.50		8	23	101.00	111.00		26	43	299.00	344.00
	6	20	72.50	80.00		10	26	110.00	122.00		28	45	337.00	383.00
	8	22	78.00	86.00		12	28	120.00	134.00		30	47	377.00	424.00
	10	24	88.00	97.00		14	30	133.00	151.00		6	22	115.00	128.00

Friction Clutch Pulleys

Diam.	Face	Space on Shaft	Price		Diam.	Face	Space on Shaft	Price		Diam.	Face	Space on Shaft	Price	
			Single Belt	Double Belt				Single Belt	Double Belt				Single Belt	Double Belt
56	8	24	128.00	142.00	66	16	34	229.00	272.00	76	18	37	328.00	392.00
	10	26	141.00	156.00		18	36	255.00	301.00		20	41	370.00	437.00
	12	28	155.00	171.00		20	39	286.00	338.00		22	43	395.00	472.00
	14	30	167.00	190.00		22	41	316.00	369.00		24	45	427.00	508.00
	16	32	179.00	209.00		24	43	345.00	407.00		26	47	459.00	552.00
	18	34	200.00	231.00		26	45	373.00	440.00		28	49	495.00	592.00
	20	36	224.00	256.00		28	47	411.00	482.00		30	51	524.00	625.00
	22	38	250.00	287.00		30	49	450.00	526.00		32	53	564.00	671.00
	24	41	280.00	321.00		6	25	151.00	179.00		34	55	607.00	715.00
	26	43	308.00	352.00	68	8	27	170.00	199.00		36	57	644.00	764.00
58	28	45	349.00	393.00		10	29	188.00	219.00	78	8	27	224.00	263.00
	30	47	383.00	438.00		12	31	206.00	239.00		10	29	245.00	288.00
	6	22	116.00	130.00		14	33	227.00	262.00		12	31	262.00	316.00
	8	24	129.00	144.00		16	35	248.00	293.00		14	33	294.00	349.00
	10	26	144.00	161.00		18	37	275.00	321.00		16	35	321.00	380.00
	12	28	156.00	178.00		20	41	298.00	362.00		18	37	350.00	412.00
	14	30	169.00	196.00		22	43	338.00	394.00		20	41	393.00	456.00
	16	32	181.00	215.00		24	45	363.00	429.00		22	43	419.00	492.00
	18	34	205.00	240.00		26	47	391.00	465.00		24	45	449.00	532.00
	20	36	230.00	266.00	70	28	49	430.00	506.00		26	47	485.00	572.00
60	22	39	261.00	300.00		30	51	467.00	549.00		28	49	520.00	612.00
	24	42	293.00	333.00		6	25	159.00	188.00		30	51	547.00	644.00
	26	44	314.00	364.00		8	27	178.00	208.00		32	53	596.00	701.00
	28	46	351.00	405.00		10	29	196.00	228.00		34	55	639.00	744.00
	30	48	393.00	451.00		12	31	216.00	249.00		36	57	671.00	788.00
	6	24	124.00	140.00		14	33	239.00	277.00	80	10	29	252.00	297.00
	8	26	137.00	154.00		16	35	261.00	306.00		12	31	280.00	332.00
	10	28	151.00	171.00		18	37	289.00	335.00		14	33	312.00	370.00
	12	30	163.00	191.00		20	41	311.00	374.00		16	35	343.00	406.00
	14	32	180.00	210.00		22	43	347.00	406.00		18	37	375.00	445.00
	16	34	191.00	231.00		24	45	375.00	442.00		20	41	415.00	492.00
	18	36	216.00	257.00		26	47	401.00	479.00		22	43	449.00	532.00
	20	39	246.00	293.00		28	49	440.00	520.00		24	45	481.00	569.00
	22	41	284.00	332.00		30	51	478.00	562.00		26	47	517.00	614.00
	24	43	306.00	360.00	72	8	27	186.00	219.00		28	49	551.00	654.00
62	26	45	331.00	391.00		10	29	204.00	239.00		30	51	584.00	695.00
	28	47	371.00	432.00		12	31	227.00	262.00		32	53	624.00	742.00
	30	49	415.00	478.00		14	33	250.00	293.00		34	55	659.00	782.00
	6	24	130.00	149.00		16	35	272.00	320.00		36	57	694.00	823.00
	8	25	144.00	164.00		18	37	301.00	351.00	82	10	30	260.00	306.00
	10	28	158.00	181.00		20	41	324.00	391.00		12	32	287.00	342.00
	12	30	173.00	201.00		22	43	361.00	424.00		14	34	321.00	380.00
	14	32	191.00	222.00		24	45	391.00	460.00		16	35	351.00	417.00
	16	34	204.00	244.00		26	47	420.00	497.00		18	37	384.00	458.00
	18	36	230.00	271.00		28	49	458.00	538.00		20	41	427.00	506.00
	20	39	260.00	308.00		30	51	492.00	579.00		22	43	462.00	548.00
	22	41	290.00	338.00		32	53	532.00	624.00		24	45	497.00	590.00
	24	43	318.00	376.00		34	55	572.00	671.00		26	47	536.00	636.00
	26	45	345.00	408.00	74	36	57	604.00	709.00		28	49	570.00	676.00
64	28	47	383.00	449.00		8	27	204.00	239.00		30	52	606.00	720.00
	30	49	425.00	494.00		10	29	223.00	259.00		32	54	646.00	767.00
	6	24	138.00	158.00		12	31	242.00	284.00		34	56	682.00	810.00
	8	26	153.00	174.00		14	33	269.00	315.00		36	58	716.00	849.00
	10	28	167.00	191.00		16	35	285.00	343.00	84	10	30	265.00	314.00
	12	30	185.00	212.00		18	37	315.00	374.00		12	32	295.00	355.00
	14	32	201.00	235.00		20	41	347.00	415.00		14	34	330.00	392.00
	16	34	216.00	258.00		22	43	380.00	448.00		16	35	364.00	430.00
	18	36	243.00	286.00		24	45	411.00	484.00		18	37	398.00	472.00
	20	39	275.00	322.00		26	47	442.00	525.00		20	41	442.00	523.00
	22	41	305.00	353.00		28	49	479.00	564.00		22	43	478.00	565.00
	24	43	331.00	391.00		30	51	507.00	602.00		24	45	516.00	610.00
	26	45	358.00	428.00		32	53	552.00	649.00		26	47	558.00	656.00
	28	47	396.00	465.00		34	55	588.00	695.00		28	49	608.00	708.00
66	30	49	437.00	510.00	76	36	57	624.00	741.00		30	52	630.00	744.00
	6	24	142.00	166.00		8	27	215.00	254.00		32	54	669.00	793.00
	8	26	159.00	184.00		10	29	234.00	275.00		34	56	707.00	840.00
	10	28	174.00	202.00		12	31	253.00	297.00		36	58	742.00	882.00
	12	30	192.00	224.00		14	33	280.00	330.00		-----	-----	-----	-----
	14	32	211.00	248.00		16	35	306.00	359.00		-----	-----	-----	-----



Friction Clutch Couplings

Levers and boxing included in below mentioned prices.

Couplings marked "*" will transmit the full power of shaft under ordinary conditions when the bearings are from 8 to 10 feet apart.

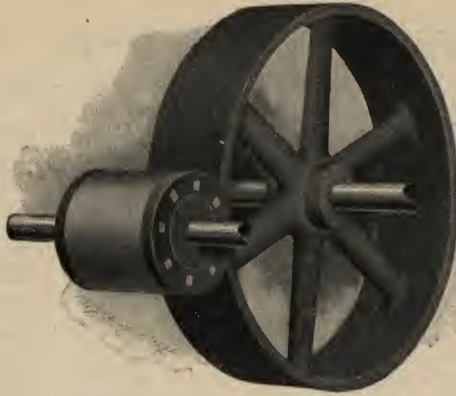
Special prices made for Reducing Friction Clutch Coupling.

Fulcrum stands are not included in these prices.

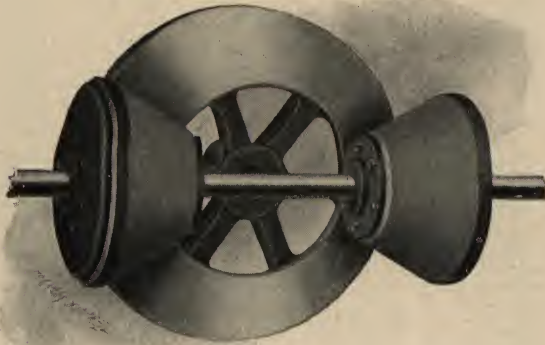
Diameter of Shaft	Diameter of Clutch	Space on Shaft		Horse Power at 100 Revolutions	Price	
		Sheave Side	Lever Side		Not Fitted on Shaft	Fitted on Shaft
1 $\frac{1}{8}$	10	3 $\frac{1}{2}$	13	3	37.10	41.00
1 $\frac{1}{8}$	10	4	15 $\frac{1}{2}$	3	38.90	42.80
1 $\frac{1}{8}$	12*	4	15 $\frac{1}{2}$	6	41.90	45.80
1 $\frac{1}{8}$	10	4	15 $\frac{1}{2}$	3	41.75	46.50
1 $\frac{1}{8}$	12*	4	15 $\frac{1}{2}$	6	44.80	49.50
1 $\frac{1}{8}$	14	4	15 $\frac{1}{2}$	10	48.85	53.55
1 $\frac{1}{8}$	12	4	15 $\frac{1}{2}$	6	47.70	53.55
1 $\frac{1}{8}$	14*	4	15 $\frac{1}{2}$	10	51.75	57.60
1 $\frac{1}{8}$	16	4 $\frac{1}{2}$	16	15	55.90	61.75
1 $\frac{1}{8}$	18	4 $\frac{1}{2}$	17	20	59.80	65.65
2 $\frac{1}{8}$	12	4	15 $\frac{1}{2}$	6	51.60	57.50
2 $\frac{1}{8}$	14	4	15 $\frac{1}{2}$	10	55.65	61.50
2 $\frac{1}{8}$	16*	4 $\frac{1}{2}$	16	15	59.80	65.65
2 $\frac{1}{8}$	18	4 $\frac{1}{2}$	17	20	63.70	69.55
2 $\frac{1}{8}$	20	4 $\frac{1}{2}$	17	25	67.90	73.75
2 $\frac{1}{8}$	14	4 $\frac{1}{2}$	15 $\frac{1}{2}$	10	59.50	65.35
2 $\frac{1}{8}$	16	4 $\frac{1}{2}$	16	15	62.75	68.60
2 $\frac{1}{8}$	18*	4 $\frac{1}{2}$	17	20	63.70	69.55
2 $\frac{1}{8}$	20	4 $\frac{1}{2}$	17	25	71.20	77.00
2 $\frac{1}{8}$	22	4 $\frac{1}{2}$	17	30	75.50	81.40
2 $\frac{1}{8}$	24	5	17	35	80.00	85.90
2 $\frac{1}{8}$	14	4 $\frac{1}{2}$	16	10	62.50	68.75
2 $\frac{1}{8}$	16	4 $\frac{1}{2}$	16	15	65.65	71.90
2 $\frac{1}{8}$	18	5	17	20	70.00	76.25
2 $\frac{1}{8}$	20*	5	17	25	74.50	80.75
2 $\frac{1}{8}$	22	5	17	30	78.80	85.00
2 $\frac{1}{8}$	24	5 $\frac{1}{2}$	17	35	83.50	89.75
2 $\frac{1}{8}$	16	4 $\frac{1}{2}$	16	15	69.60	75.85
2 $\frac{1}{8}$	18	5	17	20	73.50	79.75
2 $\frac{1}{8}$	20	5 $\frac{1}{2}$	18	25	78.60	84.85
2 $\frac{1}{8}$	22	5 $\frac{1}{2}$	18	30	83.80	89.50
2 $\frac{1}{8}$	24*	5 $\frac{1}{2}$	18	35	88.00	94.25
2 $\frac{1}{8}$	26	6	18	45	93.00	99.25
2 $\frac{1}{8}$	28	6	18	55	98.70	105.00
3 $\frac{1}{8}$	16	5	16 $\frac{1}{2}$	15	71.50	78.10
3 $\frac{1}{8}$	18	5 $\frac{1}{2}$	17	20	76.60	83.30
3 $\frac{1}{8}$	20	5 $\frac{1}{2}$	18	25	82.00	88.70
3 $\frac{1}{8}$	22	5 $\frac{1}{2}$	18	30	86.25	92.80
3 $\frac{1}{8}$	24	6	18	35	92.30	98.90
3 $\frac{1}{8}$	26*	6	18	45	97.75	104.40
3 $\frac{1}{8}$	28	6	18	55	103.00	109.70
3 $\frac{1}{8}$	16	5 $\frac{1}{2}$	17	15	75.40	82.40
3 $\frac{1}{8}$	18	6	18	20	80.50	87.50
3 $\frac{1}{8}$	20	6	18	25	86.00	93.00
3 $\frac{1}{8}$	22	6	18 $\frac{1}{2}$	30	91.00	98.00
3 $\frac{1}{8}$	24	6	18 $\frac{1}{2}$	35	96.75	104.50
3 $\frac{1}{8}$	26	6 $\frac{1}{2}$	19	45	102.00	110.00
3 $\frac{1}{8}$	28*	6 $\frac{1}{2}$	19	55	108.00	116.00
3 $\frac{1}{8}$	30	7	19	65	114.00	122.00
3 $\frac{1}{8}$	32	7	19	75	120.00	128.00
3 $\frac{1}{8}$	20	6	18	25	96.00	104.00
3 $\frac{1}{8}$	22	6	18 $\frac{1}{2}$	30	100.00	108.00
3 $\frac{1}{8}$	24	6	18 $\frac{1}{2}$	35	105.00	113.00
3 $\frac{1}{8}$	26	6 $\frac{1}{2}$	19	45	110.00	118.00
3 $\frac{1}{8}$	28	6 $\frac{1}{2}$	19	55	115.00	125.00
3 $\frac{1}{8}$	30*	7	19	65	121.50	131.50
3 $\frac{1}{8}$	32	7	19	75	129.00	139.00
3 $\frac{1}{8}$	20	6	18	25	101.00	109.00
3 $\frac{1}{8}$	22	6	18 $\frac{1}{2}$	30	105.00	113.00
3 $\frac{1}{8}$	24	6	18 $\frac{1}{2}$	35	111.00	119.00
3 $\frac{1}{8}$	26	6 $\frac{1}{2}$	19	45	117.00	125.00

Friction Clutch Couplings

Diameter of Shaft	Diameter of Clutch	Space on Shaft		Horse Power at 100 Revolutions	Price	
		Sheave Side	Lever Side		Not Fitted on Shaft	Fitted on Shaft
3½	28	6½	19	55	122.00	132.00
	30	7	19	65	128.00	138.00
	32*	7	19	75	137.00	147.00
	34	7	20	85	147.00	159.00
	36	7	20	100	161.00	173.00
4½	20	6	18	25	108.00	116.00
	22	6	18½	30	112.00	120.00
	24	6	18½	35	117.00	127.00
	26	6½	19	45	122.00	132.00
	28	6½	19	55	128.00	140.00
	30	7	19	65	134.00	146.00
	32	7	19	75	144.00	156.00
	34*	7	20	85	155.00	167.00
	36	7	21	100	168.50	181.00
	20	6½	19	25	115.00	123.00
	22	6½	19	30	118.00	126.00
4½	24	6½	19	35	122.00	132.00
	26	6½	19	45	128.00	138.00
	28	7	19½	55	134.00	146.00
	30	7	19½	65	141.00	153.00
	32	7	19½	75	156.00	168.00
	34	7	20	85	170.00	184.00
	36*	7	21	100	184.00	198.00
	40	7	21	125	213.00	229.00
	44	7	23	150	244.00	260.00
	24	6½	19	35	128.00	140.00
	26	6½	19	45	134.00	146.00
4½	28	7	19½	55	140.00	154.00
	30	7	19½	65	147.00	161.00
	32	7	20	75	162.00	176.00
	34	7	21	85	176.00	192.00
	36	7	21	100	191.00	207.00
	40*	7	21	125	221.00	239.00
	44	7	23	150	255.00	273.00
	24	6½	20	35	133.00	147.00
	26	6½	21	45	140.00	154.00
	28	7	21	55	146.00	162.00
	30	7	22	65	154.00	170.00
4½	32	7	22	75	168.00	184.00
	34	7	23	85	184.00	200.00
	36	7	23	100	199.00	217.00
	40	7	24	125	229.00	247.00
	44*	7	25	150	263.00	283.00
	28	7	22	55	156.00	172.00
	30	7	22	65	167.00	183.00
	32	7	23	75	181.00	197.00
	34	7	23	85	197.00	213.00
	36	7	25	100	213.00	231.00
	40	7	25	125	243.00	261.00
5½	44	7½	26	150	276.00	296.00
	48*	8	27	200	311.00	333.00
	54	9	28	275	362.00	386.00
	60	10	29	300	410.00	441.00
	30	7	22	65	179.00	199.00
	32	7	23	75	194.00	214.00
	34	7	23	85	210.00	230.00
	36	7	25	100	226.00	248.00
	40	7	26	125	258.00	280.00
	44	8	27	150	291.00	317.00
	48	8	27	175	327.00	355.00
6½	54*	9	28	225	377.00	409.00
	60	10	29	300	427.00	466.00
	30	7½	23	65	223.00	247.00
	32	7½	23	75	240.00	264.00
	34	7½	25	85	258.00	282.00
	36	7½	25	100	275.00	308.00
	40	7½	26	125	312.00	340.00
	44	8	27	150	345.00	377.00
	48	8	28	175	381.00	416.00
	54	9	29	225	434.00	473.00
	60*	10	31	300	488.00	535.00



Spur Friction Gearing
See lists on opposite page.



Bevel Friction Gearing
Prices on application.



Eccentric Boxes

FOR ENGAGING AND DISENGAGING FRICTION GEARING

Diameter of Shaft.....	1 $\frac{1}{4}$	1 $\frac{7}{8}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	2 $\frac{1}{8}$	2 $\frac{1}{4}$	2 $\frac{3}{8}$	2 $\frac{1}{2}$
Price	9.35	11.00	12.65	14.30	16.50	18.15	20.60	23.65

Spur Iron Friction Gearing

Diam.	Face, in Inches															
	3	4	5	6	7	8	9	10	12	14	16	18	20	22	24	
6"	3.58	3.92	4.34	4.84	5.32	5.82	6.30	6.80	-----	-----	-----	-----	-----	-----	-----	
7"	3.86	4.20	4.68	5.18	5.68	6.24	6.80	7.36	-----	-----	-----	-----	-----	-----	-----	
8"	4.14	4.48	4.98	5.54	6.10	6.66	7.28	7.98	-----	-----	-----	-----	-----	-----	-----	
9"	4.42	4.84	5.32	5.96	6.52	7.14	7.84	8.54	-----	-----	-----	-----	-----	-----	-----	
10"	-----	5.18	5.74	6.38	7.00	7.70	8.40	9.18	10.72	12.46	-----	-----	-----	-----	-----	
11"	-----	5.54	6.16	6.86	7.56	8.34	9.04	9.88	11.48	13.30	-----	-----	-----	-----	-----	
12"	-----	5.88	6.58	7.36	8.12	8.90	9.74	10.58	12.26	14.14	-----	-----	-----	-----	-----	
13"	-----	6.24	7.00	7.84	8.68	9.52	10.44	11.34	13.16	15.20	-----	-----	-----	-----	-----	
14"	-----	6.58	7.42	8.34	9.18	10.08	11.06	12.04	14.00	16.24	-----	-----	-----	-----	-----	
15"	-----	7.00	7.92	8.82	9.74	10.72	11.76	12.82	14.98	17.30	-----	-----	-----	-----	-----	
16"	-----	7.42	8.40	9.38	10.44	11.48	12.60	13.86	16.04	18.56	-----	-----	-----	-----	-----	
17"	-----	7.92	8.96	10.02	11.06	12.26	13.44	14.64	17.16	19.82	-----	-----	-----	-----	-----	
18"	-----	-----	9.46	10.64	11.84	13.02	14.28	15.54	18.28	21.14	24.08	-----	-----	-----	-----	
20"	-----	-----	10.58	12.04	13.44	14.84	16.38	17.92	21.00	24.36	27.72	-----	-----	-----	-----	
22"	-----	-----	11.84	13.44	15.12	16.80	18.48	20.30	23.80	27.58	31.36	-----	-----	-----	-----	
24"	-----	-----	13.10	14.92	16.80	18.76	20.72	22.68	26.60	30.80	35.14	-----	-----	-----	-----	
26"	-----	-----	14.64	16.66	18.76	20.86	22.96	25.20	29.54	34.38	39.34	-----	-----	-----	-----	
28"	-----	-----	16.18	18.42	20.72	22.96	25.28	27.72	32.62	37.94	43.54	-----	-----	-----	-----	
30"	-----	-----	17.78	20.38	22.68	25.20	27.72	30.24	35.70	41.58	47.88	-----	-----	-----	-----	
32"	-----	-----	19.74	22.48	25.06	27.80	31.08	33.40	39.20	45.72	52.44	-----	-----	-----	-----	
34"	-----	-----	21.70	24.64	27.58	30.46	33.40	36.54	42.70	49.84	56.98	-----	-----	-----	-----	
36"	-----	-----	-----	26.88	30.04	33.18	36.40	39.62	46.34	53.98	61.60	69.30	-----	-----	-----	
38"	-----	-----	-----	29.48	32.84	36.26	39.70	43.12	50.34	58.32	66.82	74.90	82.50	-----	-----	
40"	-----	-----	-----	-----	35.64	39.34	42.98	46.62	54.26	62.72	73.72	80.50	89.18	-----	-----	
42"	-----	-----	-----	-----	38.58	42.42	46.28	50.20	58.24	67.14	76.16	85.40	94.64	-----	-----	
44"	-----	-----	-----	-----	41.66	45.78	49.92	54.12	62.86	72.24	81.90	91.70	101.50	-----	-----	
46"	-----	-----	-----	-----	-----	49.22	53.70	58.18	67.48	77.42	87.64	98.00	108.36	118.72	-----	
48"	-----	-----	-----	-----	-----	52.72	57.48	62.24	72.10	82.60	93.38	104.30	115.22	126.14	-----	
50"	-----	-----	-----	-----	-----	56.42	61.40	66.44	76.72	87.78	99.20	110.82	122.36	133.98	145.74	

Spur Paper Friction Gearing

Diam.	Face, in Inches										
	4	5	6	7	8	10	12	14	18	20	24
4"	2.60	3.02	3.42	3.84	4.26	5.10	-----	-----	-----	-----	-----
5"	2.84	3.30	3.76	4.20	4.66	5.48	-----	-----	-----	-----	-----
6"	3.28	3.78	4.30	4.80	5.32	6.30	-----	-----	-----	-----	-----
7"	4.00	4.62	5.28	5.90	6.58	7.88	-----	-----	-----	-----	-----
8"	4.58	5.28	6.04	6.76	7.52	9.10	-----	-----	-----	-----	-----
9"	5.40	6.22	7.06	7.86	8.70	10.36	-----	-----	-----	-----	-----
10"	6.02	7.00	8.00	9.08	10.58	12.64	14.62	16.60	-----	-----	-----
11"	7.44	8.56	9.66	10.78	11.88	14.20	16.42	18.64	-----	-----	-----
12"	8.28	9.50	10.72	11.96	13.20	15.74	18.20	20.68	25.58	28.04	32.96
13"	9.70	11.08	12.50	14.00	15.30	18.20	21.00	23.80	29.40	32.19	37.78
14"	10.74	12.27	13.84	15.38	16.96	20.16	23.26	26.38	32.62	35.72	41.94
15"	11.10	12.76	14.42	16.08	17.73	21.20	24.52	27.90	34.96	39.27	44.96
16"	12.77	14.58	16.42	18.24	20.06	23.84	27.50	31.44	38.45	42.11	49.41
17"	13.82	15.78	17.74	19.70	21.66	25.70	29.60	33.30	41.34	45.26	53.10
18"	-----	16.95	19.08	21.18	23.26	27.58	31.78	35.98	44.36	48.55	56.94
20"	-----	21.36	23.76	26.16	28.54	33.46	38.24	43.04	52.61	57.40	66.98
22"	-----	26.60	29.34	32.06	34.78	40.44	45.88	51.34	65.23	67.68	78.58
24"	-----	30.58	33.64	36.70	39.74	46.04	52.14	58.24	70.44	76.54	88.74
26"	-----	33.72	36.98	40.16	43.48	50.18	56.68	63.16	76.17	82.66	95.66
28"	-----	39.12	42.98	46.84	50.70	58.64	66.36	74.08	89.51	97.24	112.38
30"	-----	42.50	46.82	51.12	55.44	64.26	73.88	81.39	98.72	107.34	124.57



Style B Pulley

Gilbert Wood Split Pulleys

STYLES B AND C

These pulleys are made entirely of maple, with spokes running from rims direct to the shaft, and are furnished with the only bushing in use giving a perfect bearing on the entire circumference of shaft.

Pulleys 3" or 4" in diameter are bored for a round bushing 1 $\frac{1}{4}$ " outside diameter, and will go on a shaft 1 $\frac{1}{4}$ " or less in diameter.

Pulleys 5" to 17" in diameter are bored for a round bushing 3" outside diameter, and will go on a shaft 3" or less in diameter.

Pulleys 18" to 48" in diameter are bored for a round bushing 3 $\frac{1}{2}$ " outside diameter, and will go on a shaft 3 $\frac{1}{2}$ " or less in diameter.

Pulleys above 48" in diameter are bored for a round bushing 4 $\frac{1}{2}$ " outside diameter, and will go on a shaft 4 $\frac{1}{2}$ " or less in diameter.

We carry a large stock of different sizes, diameters, and bores, running from 3" to 60" in diameter.

Wood Bushings

One complete bushing of length required by pulley hub is furnished with each pulley without charge.

EXTRA OR SEPARATE BUSHINGS

10" or less of complete bushing.....	.50
More than 10" of complete bushing, per inch.....	.05

Special Bores

For boring pulleys to fit shaft when bore is less than standard, or for boring pulleys larger than standard but smaller than bores shown in the following table, add 10 per cent to regular list.

PRICE FOR EXTRA LARGE BORES

	Add to list 15%	Add to list 20%	Add to list 25%	Add to list 35%	Add to list 50%	Add to list 65%
Under 12" diam.....	3 $\frac{1}{8}$ " to 4 "	4 $\frac{1}{8}$ " to 5 "	5 $\frac{1}{8}$ " to 6 "	7 $\frac{1}{8}$ " to 10"		
From 12" to 48" diam.	4 $\frac{1}{8}$ " to 4 $\frac{3}{4}$ "	4 $\frac{3}{8}$ " to 6 "	6 $\frac{1}{8}$ " to 7 $\frac{3}{8}$ "	9 $\frac{1}{8}$ " to 12"	12 $\frac{1}{8}$ " to 15"	15 $\frac{1}{8}$ " to 19"
From 49" to 72" diam.	5 $\frac{1}{8}$ " to 6 "	6 $\frac{1}{8}$ " to 7 $\frac{3}{8}$ "	7 $\frac{1}{8}$ " to 9 $\frac{3}{8}$ "	12 $\frac{1}{8}$ " to 15"	15 $\frac{1}{8}$ " to 18"	18 $\frac{1}{8}$ " to 21"
From 73" to 96" diam.	7 $\frac{1}{8}$ " to 8 "	8 $\frac{1}{8}$ " to 10 "	10 $\frac{1}{8}$ " to 12"	15 $\frac{1}{8}$ " to 18"	18 $\frac{1}{8}$ " to 21"	21 $\frac{1}{8}$ " to 25"
From 97" to 120" diam.	9 $\frac{1}{8}$ " to 10 "	10 $\frac{1}{8}$ " to 12 $\frac{3}{8}$ "	12 $\frac{1}{8}$ " to 15 "			

For bores in excess of above limits net prices will be made on application.

Gilbert Wood Split Pulleys

STYLES B AND C

Diam. Inches	Width of Face, Inches												
	3	4	5	6	8	10	12	14	16	18	20	22	24
4	2.80	2.90	3.10	3.30	3.70	4.10	4.50	-----	-----	-----	-----	-----	-----
5	2.85	2.95	3.20	3.40	3.85	4.30	4.75	-----	-----	-----	-----	-----	-----
6	2.90	3.00	3.25	3.50	4.00	4.50	5.00	-----	-----	-----	-----	-----	-----
7	2.95	3.05	3.35	3.60	4.15	4.70	5.25	5.80	-----	-----	-----	-----	-----
8	3.00	3.10	3.40	3.70	4.30	4.90	5.50	6.10	-----	-----	-----	-----	-----
9	3.10	3.25	3.60	3.90	4.55	5.20	5.85	6.50	-----	-----	-----	-----	-----
10	3.25	3.40	3.75	4.10	4.80	5.50	6.20	6.90	7.60	-----	-----	-----	-----
11	3.50	3.70	4.10	4.50	5.30	6.10	6.90	7.70	8.50	-----	-----	-----	-----
12	3.75	4.00	4.45	4.90	5.80	6.70	7.60	8.50	9.40	10.30	-----	-----	-----
13	-----	4.30	4.80	5.30	6.30	7.30	8.30	9.30	10.30	11.30	-----	-----	-----
14	-----	4.60	5.15	5.70	6.80	7.90	9.00	10.10	11.20	12.30	13.40	-----	-----
15	-----	4.90	5.50	6.10	7.30	8.50	9.70	10.90	12.10	13.30	14.50	-----	-----
16	-----	5.20	5.85	6.50	7.80	9.10	10.40	11.70	13.00	14.30	15.60	16.90	-----
17	-----	5.50	6.20	6.90	8.30	9.70	11.10	12.50	13.90	15.30	16.70	18.10	-----
18	-----	5.80	6.55	7.30	8.80	10.30	11.80	13.30	14.80	16.30	17.80	19.30	20.80
19	-----	6.10	6.90	7.70	9.30	10.90	12.50	14.10	15.70	17.30	18.90	20.50	22.10
20	-----	6.40	7.25	8.10	9.80	11.50	13.20	14.90	16.60	18.30	20.00	21.70	23.40
22	-----	7.00	7.95	8.90	10.80	12.70	14.60	16.50	18.40	20.30	22.20	24.10	26.00
24	-----	7.70	8.80	9.90	12.10	14.30	16.50	18.70	20.90	23.10	25.30	27.50	29.70
26	-----	8.40	9.65	10.90	13.40	15.90	18.40	20.90	23.40	25.90	28.40	30.90	33.40
28	-----	9.10	10.50	11.90	14.70	17.50	20.30	23.10	25.90	28.70	31.50	34.30	37.10
30	-----	9.80	11.35	12.90	16.00	19.10	22.20	25.30	28.40	31.50	34.60	37.70	40.80
32	-----	10.50	12.20	13.90	17.30	20.70	24.10	27.50	30.90	34.30	37.70	41.10	44.50
34	-----	11.30	13.15	15.00	18.70	22.40	26.10	29.80	33.50	37.20	40.90	44.60	48.30
36	-----	12.10	14.10	16.10	20.10	24.10	28.10	32.10	36.10	40.10	44.10	48.10	52.10
38	-----	-----	-----	17.20	21.50	25.80	30.10	34.40	38.70	43.00	47.30	51.60	55.90
40	-----	-----	-----	18.30	22.90	27.50	32.10	36.70	41.30	45.90	50.50	55.10	59.70
42	-----	-----	-----	19.60	24.60	29.60	34.60	39.60	44.60	49.60	54.60	59.60	64.60
44	-----	-----	-----	20.90	26.30	31.70	37.10	42.50	47.90	53.30	58.70	64.10	69.50
46	-----	-----	-----	22.30	28.10	33.90	39.70	45.50	51.30	57.10	62.90	68.70	74.50
48	-----	-----	-----	23.80	30.00	36.20	42.40	48.60	54.80	61.00	67.20	73.40	79.60
50	-----	-----	-----	25.40	32.00	38.60	45.20	-----	58.40	65.00	71.60	78.20	84.80
52	-----	-----	-----	27.10	34.10	41.10	48.10	55.10	62.10	69.10	76.10	83.10	90.10
54	-----	-----	-----	28.90	36.30	43.70	51.10	58.50	65.90	73.30	80.70	88.10	95.50
56	-----	-----	-----	30.80	38.60	46.40	54.20	62.00	69.80	77.60	85.40	93.20	101.00
58	-----	-----	-----	32.80	41.00	49.20	57.40	65.60	73.80	82.00	90.20	98.40	106.60
60	-----	-----	-----	34.90	43.50	52.10	60.70	69.30	77.90	86.50	95.10	103.70	112.30
62	-----	-----	-----	37.10	46.10	55.10	64.10	73.10	82.10	91.10	100.10	109.10	118.10
64	-----	-----	-----	39.40	48.80	58.20	67.60	77.00	86.40	95.80	105.20	114.60	124.00
66	-----	-----	-----	41.90	51.80	61.70	71.60	81.50	91.40	101.30	111.20	121.10	131.00
68	-----	-----	-----	44.50	54.90	65.30	75.70	86.10	96.50	106.90	117.30	127.70	138.10
70	-----	-----	-----	47.20	58.10	69.00	79.90	90.80	101.70	112.60	123.50	134.40	145.30
72	-----	-----	-----	50.00	61.40	72.80	84.20	95.60	107.00	118.40	129.80	141.20	152.60
74	-----	-----	-----	-----	71.90	84.80	97.70	110.60	123.50	136.40	149.30	162.20	175.10
84	-----	-----	-----	-----	83.30	97.70	112.10	126.50	140.90	155.30	169.70	184.10	198.50
90	-----	-----	-----	-----	95.60	111.50	127.40	143.30	159.20	175.10	191.00	206.90	222.80
96	-----	-----	-----	-----	109.00	126.50	144.00	161.50	179.00	196.50	214.00	231.50	249.00
102	-----	-----	-----	-----	123.70	143.00	162.30	181.60	200.90	220.20	239.50	258.80	278.10
108	-----	-----	-----	-----	139.30	160.40	181.50	202.60	223.70	244.80	265.90	287.00	308.10
114	-----	-----	-----	-----	155.80	178.70	201.60	224.50	247.40	270.30	293.20	316.10	339.00
120	-----	-----	-----	-----	173.20	197.90	222.60	247.30	272.00	296.70	321.40	346.10	370.80

NON-LISTED SIZES

For a pulley whose diameter is expressed in fractions of an inch, or in inches not listed, use the list of the next larger diameter listed.

For a pulley whose face width is expressed in fractions of an inch, or in inches not listed, use the list of the next wider face listed.

If face exceeds widest size listed, extend the list at the same rate per inch as that existing between last two sizes listed.



Style A Pulley

Gilbert Wood Split Pulleys

WITH SPECIAL IRON CENTER

ESPECIALLY ADAPTED FOR MAIN DRIVING PULLEYS

This Pulley is built for extremely severe work.

It is made entirely of selected, thoroughly seasoned maple, and finished with two coats of shellac varnish.

The rim is both nailed and glued.

The spokes are securely dovetailed into and glued and nailed in the rim; and each one is set in a line running direct from the center of the shaft to the rim—thus affording its utmost support.

It is fitted with a split, iron center which is turned on the outside, bored to exact size of shaft, and key-seated.

It cannot get out of round.

Every pulley is perfectly balanced.

Remember that a maple rim will transmit from 40 to 50 per cent more power than an iron rim, with like tension of belt; and that this pulley can be run with perfect safety, at from two to three times the speed which would cause the best iron pulley to fly to pieces.

Made in sizes from 3 feet to 20 feet diameter.

Prices and special circular on application.

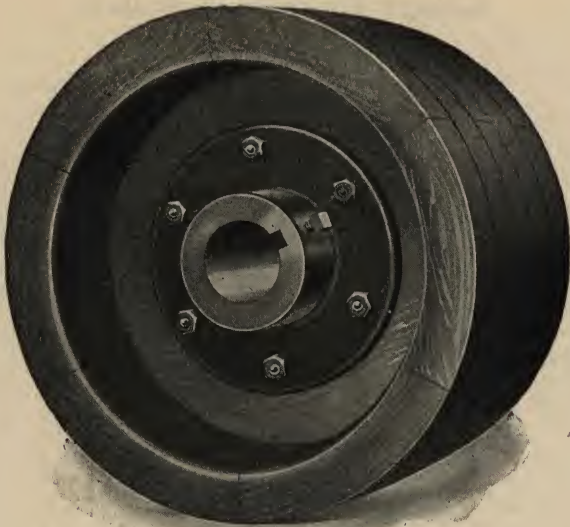
Gilbert Wood Split Pulleys

STYLE A

Take the price of a 36" pulley for any Style A pulley less than 36" in diameter.

Diam. Inches	Width of Face, Inches												
	6	8	10	12	14	16	18	20	22	24	26	28	30
36	24.30	29.20	34.20	39.30	44.50	49.80	55.20	60.70	66.30	72.00	77.80	83.70	89.70
37	25.25	30.40	35.65	41.00	46.45	52.00	57.65	63.40	69.25	75.20	81.25	87.40	93.65
38	26.20	31.60	37.10	42.70	48.40	54.20	60.10	66.10	72.20	78.40	84.70	91.10	97.60
39	27.20	32.85	38.60	44.45	50.40	56.45	62.60	68.85	75.20	81.65	88.20	94.85	101.60
40	28.20	34.10	40.10	46.20	52.40	58.70	65.10	71.60	78.20	84.90	91.70	98.60	105.60
41	29.25	35.40	41.65	48.00	54.45	61.00	67.65	74.40	81.25	88.20	95.25	102.40	109.65
42	30.30	36.70	43.20	49.80	56.50	63.30	70.20	77.20	84.30	91.50	98.80	106.20	113.70
43	31.40	38.05	44.80	51.65	58.60	65.65	72.80	80.05	87.40	94.85	102.40	110.05	117.80
44	32.50	39.40	46.40	53.50	60.70	68.00	75.40	82.90	90.50	98.20	106.00	113.90	121.90
45	33.65	40.80	48.05	55.40	62.85	70.40	78.05	85.80	93.65	101.60	109.65	117.80	126.05
46	34.80	42.20	49.70	57.30	65.00	72.80	80.70	88.70	96.80	105.00	113.30	121.70	130.20
47	36.00	43.65	51.40	59.25	67.20	75.25	83.40	91.65	100.00	108.45	117.00	125.65	134.40
48	37.20	45.10	53.10	61.20	69.40	77.70	86.10	94.60	103.20	111.90	120.70	129.60	138.60
50	39.70	48.10	56.60	65.20	73.90	82.70	91.60	100.60	109.70	118.90	128.20	137.60	147.10
52	42.30	51.20	60.20	69.30	78.50	87.80	97.20	106.70	116.30	126.00	135.80	145.70	155.70
54	45.00	54.40	63.90	73.50	83.20	93.00	102.90	112.90	123.00	133.20	143.50	153.90	164.40
56	47.80	57.70	67.70	77.80	88.00	98.30	108.70	119.20	129.80	140.50	151.30	162.50	173.20
58	50.70	61.10	71.60	82.20	92.90	103.70	114.60	125.60	136.70	147.90	159.20	170.60	182.10
60	53.70	64.60	75.60	86.70	97.90	109.20	120.60	132.10	143.70	155.40	167.20	179.10	191.10
62	56.80	68.20	79.70	91.30	103.00	114.80	126.70	138.70	150.80	163.00	175.30	187.70	200.20
64	60.00	71.90	83.90	96.00	108.20	120.50	132.90	145.40	158.00	170.70	183.50	196.40	209.40
66	63.30	75.70	88.20	100.80	113.50	126.30	139.20	152.20	165.30	178.50	191.80	205.20	218.70
68	66.70	79.60	92.60	105.70	118.90	132.20	145.60	159.10	172.70	186.40	200.20	214.10	228.10
70	70.20	83.60	97.10	110.70	124.40	138.20	152.10	166.10	180.20	194.40	208.70	223.10	237.60
72	73.80	87.70	101.70	115.80	130.00	144.30	158.70	173.20	187.80	202.50	217.30	232.20	247.20
74	---	91.90	106.40	121.00	135.70	150.50	165.40	180.40	195.50	210.70	226.00	241.40	256.90
76	---	96.20	111.20	126.30	141.50	156.80	172.20	187.70	203.30	219.00	234.80	250.70	266.70
78	---	100.60	116.10	131.70	147.40	163.20	179.10	195.10	211.20	227.40	243.70	260.10	276.60
80	---	105.10	121.10	137.20	153.40	169.70	186.10	202.60	219.20	235.90	252.70	269.60	286.60
82	---	109.70	126.20	142.80	159.50	176.30	193.20	210.20	227.30	244.50	261.80	279.20	296.70
84	---	114.40	131.40	148.50	165.70	183.00	200.40	217.90	235.50	253.20	271.00	288.90	306.90
86	---	119.20	136.70	154.30	172.00	189.80	207.70	225.70	243.80	262.00	280.30	298.70	317.20
88	---	124.10	142.10	160.20	178.40	196.70	215.10	233.60	252.20	270.90	289.70	308.60	327.60
90	---	129.10	147.60	166.20	184.90	203.70	222.60	241.60	260.70	279.90	299.20	318.60	338.10
92	---	134.20	153.20	172.30	191.50	210.80	230.20	249.70	269.30	289.00	308.80	328.70	348.70
94	---	139.40	158.90	178.50	198.20	218.00	237.90	257.90	278.00	298.20	318.50	338.90	359.40
96	---	144.70	164.70	184.80	205.00	225.30	245.70	266.20	286.80	307.50	328.30	349.20	370.20
98	---	150.10	170.60	191.20	211.90	232.70	253.60	274.60	295.70	316.90	338.20	359.60	381.10
100	---	155.60	176.60	197.70	218.90	240.20	261.60	283.10	304.70	326.40	348.20	370.10	392.10
102	---	161.20	182.70	204.30	226.00	247.80	269.70	291.70	313.80	336.00	358.30	380.70	403.20
104	---	166.90	188.90	211.00	233.20	255.50	277.90	300.40	323.00	345.70	368.50	391.40	414.40
106	---	172.70	195.20	217.80	240.50	263.30	286.20	309.20	332.30	355.70	378.80	402.20	425.70
108	---	178.60	201.60	224.70	247.90	271.20	294.60	318.10	341.70	365.40	389.20	413.10	437.10
110	---	184.60	208.10	231.70	255.40	279.20	303.10	327.10	351.20	375.40	399.70	424.10	448.60
112	---	190.70	214.70	238.80	263.00	287.30	311.70	336.20	360.80	385.50	410.30	435.20	460.20
114	---	196.90	221.40	246.00	270.70	295.50	320.40	345.40	370.50	395.70	421.00	446.40	471.90
116	---	203.20	228.20	253.30	278.50	303.80	329.20	354.70	380.30	406.00	431.80	457.70	483.70
118	---	209.60	235.10	260.70	286.40	312.20	338.10	364.10	390.20	416.40	442.70	469.10	495.60
120	---	216.10	242.10	268.20	294.40	320.70	347.10	373.60	400.20	426.90	453.70	480.60	507.60
122	---	---	249.20	275.80	302.50	329.30	356.20	383.20	410.30	437.50	464.80	492.20	519.70
124	---	---	256.40	283.50	310.70	338.00	365.40	392.90	420.50	448.20	476.00	503.90	531.90
126	---	---	263.70	291.30	319.00	346.80	374.70	402.70	430.80	459.00	487.30	515.70	544.20
128	---	---	271.10	299.20	327.40	355.70	384.10	412.60	441.20	469.90	498.70	527.60	556.60
130	---	---	278.60	307.20	335.90	364.70	393.60	422.60	451.70	480.90	510.20	539.60	569.10
132	---	---	286.20	315.30	344.50	373.80	403.20	432.70	462.30	492.00	521.80	551.70	581.70
134	---	---	293.90	323.50	353.20	383.00	412.90	442.90	473.00	503.20	533.50	563.90	594.40
136	---	---	301.70	331.80	362.00	392.30	422.70	453.20	483.80	514.50	545.30	576.20	607.20
138	---	---	309.60	340.20	370.90	401.70	432.60	463.60	494.70	525.90	557.20	588.60	620.10
140	---	---	317.60	348.70	379.90	411.20	442.60	474.10	505.70	537.40	569.20	601.10	633.10
142	---	---	325.70	357.30	389.00	420.80	452.70	484.70	516.80	549.00	581.30	613.70	646.20
144	---	---	333.90	366.00	398.20	430.50	462.90	495.40	528.00	560.70	593.50	626.40	659.40
146	---	---	---	374.80	407.50	440.30	473.20	506.20	539.30	572.50	605.80	639.20	672.70
148	---	---	---	383.70	416.90	450.20	483.60	517.10	550.70	584.40	618.20	652.10	686.10
150	---	---	---	392.70	426.40	460.20	494.10	528.10	562.20	596.40	630.70	665.10	699.60
152	---	---	---	401.80	436.00	470.30	504.70	539.20	573.80	608.50	643.30	678.20	713.20
154	---	---	---	411.00	445.70	480.50	515.40	550.40	585.50	620.70	656.00	691.40	726.90
156	---	---	---	420.30	455.50	490.80	526.20	561.70	597.30	633.00	668.80	704.70	740.70
158	---	---	---	429.70	465.40	501.20	537.10	573.10	609.20	645.40	681.70	718.10	754.60
160	---	---	---	439.20	475.40	511.70	548.10	584.60	621.20	657.90	694.70	731.60	768.60
162	---	---	---	448.80	485.50	522.30	559.20	596.20	633.30	670.50	707.80	745.20	782.70
164	---	---	---	458.50	495.70	533.00	570.40	607.90	645.50	683.20	721.00	758.90	796.90
166	---	---	---	468.30	506.00	543.80	581.70	619.70	657.80	696.00	734.30	772.70	811.20
168	---	---	---	478.20	516.40	554.70	593.10	631.60	670.20	708.90	747.70	786.60	825.60
174	---	---	---	508.50	548.20	588.00	627.90	667.90	708.00	748.20	788.50	828.90	869.40
180	---	---	---	539.70	580.90	622.20	663.60	705.10	746.70	788.40	830.20	872.10	914.10

Intermediate widths of face at proportionate prices.



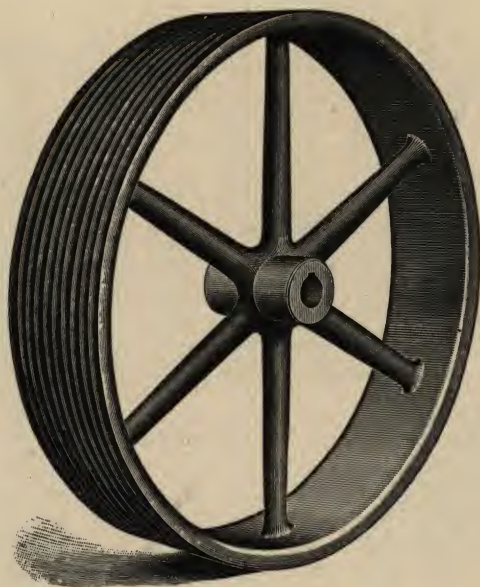
Style D Special Pulley

Gilbert Special Dynamo Pulleys

This pulley has a solid web, with an iron center fitted with keyseat and set screw, and is especially adapted for running dynamos or for other severe work.
Every pulley is perfectly balanced.

Diam. Inches	Width of Face in Inches													
	4	5	6	7	8	9	10	11	12	13	14	15	16	18
6	6.80	7.30	7.80	8.30	8.80	9.30	9.80	10.30	10.80	-----	-----	-----	-----	-----
7	6.95	7.48	8.00	8.53	9.05	9.58	10.10	10.63	11.15	-----	-----	-----	-----	-----
8	7.10	7.65	8.20	8.75	9.30	9.85	10.40	10.95	11.50	-----	-----	-----	-----	-----
9	7.30	7.88	8.45	9.03	9.60	10.18	10.75	11.33	11.90	12.48	13.05	-----	-----	-----
10	7.50	8.10	8.70	9.30	9.90	10.50	11.10	11.70	12.30	12.90	13.50	-----	-----	-----
11	7.70	8.33	8.95	9.58	10.20	10.83	11.45	12.08	12.70	13.33	13.95	-----	-----	-----
12	8.00	8.65	9.30	9.95	10.60	11.25	11.90	12.55	13.20	13.85	14.50	-----	-----	-----
13	8.30	8.98	9.65	10.33	11.00	11.68	12.35	13.03	13.70	14.38	15.05	-----	-----	-----
14	8.60	9.30	10.00	10.70	11.40	12.10	12.80	13.50	14.20	14.90	15.60	-----	-----	-----
15	8.95	9.68	10.40	11.13	11.85	12.58	13.30	14.03	14.75	15.48	16.20	-----	-----	-----
16	9.30	10.05	10.80	11.55	12.30	13.05	13.80	14.55	15.30	16.05	16.80	17.55	-----	-----
17	9.70	10.48	11.25	12.03	12.80	13.58	14.35	15.13	15.90	16.68	17.45	18.23	-----	-----
18	10.10	10.90	11.70	12.50	13.30	14.10	14.90	15.70	16.50	17.30	18.10	18.90	19.70	-----
19	10.55	11.38	12.20	13.03	13.85	14.68	15.50	16.33	17.15	17.98	18.80	19.63	20.45	-----
20	11.00	11.85	12.70	13.55	14.40	15.25	16.10	16.95	17.80	18.65	19.50	20.35	21.20	-----
21	11.50	12.38	13.25	14.13	15.00	15.88	16.75	17.63	18.50	19.33	20.25	21.13	22.00	-----
22	12.00	12.90	13.80	14.70	15.60	16.50	17.40	18.30	19.20	20.10	21.00	21.90	22.80	-----
23	12.55	13.48	14.40	15.37	16.25	17.18	18.10	19.03	19.95	20.88	21.80	22.73	23.65	-----
24	13.20	14.10	15.00	15.95	16.90	17.90	18.90	19.95	21.00	22.10	23.20	24.35	25.50	27.90
25	13.60	14.63	15.65	16.73	17.80	18.93	20.05	21.23	22.40	23.63	24.85	26.13	27.40	30.05
26	14.00	15.15	16.30	17.50	18.70	19.95	21.20	22.50	23.80	25.15	26.50	27.90	29.30	32.20
27	14.45	15.73	17.00	18.33	19.65	21.03	22.40	23.83	25.25	26.73	28.20	29.73	31.25	34.40
28	14.90	16.30	17.70	19.15	20.60	22.10	23.60	25.15	26.70	28.30	29.90	31.55	33.20	36.60
29	15.40	16.93	18.45	20.03	21.60	23.23	24.85	26.53	28.20	29.93	31.65	33.43	35.20	38.85
30	15.90	17.55	19.20	20.90	22.60	24.35	26.10	27.90	29.70	31.55	33.40	35.30	37.20	41.10
31	16.45	18.23	20.00	21.83	23.65	25.53	27.40	29.33	31.25	33.23	35.20	37.23	39.25	43.40
32	17.00	18.90	20.80	22.75	24.70	26.70	28.70	30.75	32.80	34.90	37.00	39.15	41.30	45.70
34	18.20	20.35	22.50	24.70	26.90	29.15	31.40	33.70	36.00	38.35	40.70	43.10	45.50	50.40

For price of split pulleys, add 20 per cent to above list.



Turned Iron Sheaves

FOR MANILA ROPE TRANSMISSION

FOR LIST PRICES, SEE FOLLOWING PAGES

Our Sheaves are of the latest design, well proportioned, with grooves calculated to transmit the maximum power without wedging.

Cast Iron Sheaves For Manila Rope Transmission

WITH TURNED GROOVES FOR $\frac{3}{4}$, $\frac{7}{8}$, 1 AND $1\frac{1}{8}$ -INCH ROPE

Diameter in Inches	Number of Grooves									
	1	2	3	4	5	6	7	8	9	10
12	9.00	12.00	15.00	21.75	25.50	28.75	32.00	36.00	40.50	45.50
14	9.50	13.00	17.50	22.50	26.50	30.00	33.50	37.50	41.50	47.00
16	10.00	14.00	20.50	23.50	27.50	31.00	35.00	39.00	43.00	49.00
18	11.75	15.00	21.00	27.00	32.00	37.00	41.00	45.00	50.00	56.00
20	12.70	17.00	26.50	30.50	36.75	42.00	47.00	52.00	58.00	64.00
22	13.00	18.50	27.00	35.00	41.50	47.00	53.00	59.00	66.00	71.00
24	14.75	20.50	29.00	37.00	44.00	50.00	56.00	62.00	69.00	75.00
26	15.75	22.50	31.50	41.00	48.00	55.00	63.00	69.00	77.00	84.00
28	16.50	23.50	32.50	42.00	49.00	57.00	65.00	71.00	79.00	86.00
30	18.00	25.50	34.00	43.00	51.00	58.00	67.00	73.00	82.00	89.00
32	20.50	28.50	38.00	48.00	58.00	64.00	72.00	80.00	89.00	97.00
34	22.50	30.00	39.00	49.00	59.00	65.00	74.00	82.00	91.00	100.00
36	23.00	31.00	41.00	51.00	61.00	68.00	77.00	86.00	95.00	105.00
40	26.50	35.00	46.00	57.00	70.00	85.00	96.00	103.00	111.00	119.00
44	29.00	38.00	49.00	61.00	74.00	89.00	100.00	108.00	116.00	125.00
48	33.00	46.00	54.00	70.00	85.00	90.00	110.00	120.00	128.00	137.00
52	41.00	54.00	68.00	79.00	93.00	107.00	119.00	129.00	137.00	146.00
56	44.00	57.00	71.00	83.00	98.00	112.00	124.00	134.00	143.00	152.00
60	50.00	63.00	76.00	98.00	111.00	128.00	144.00	155.00	172.00	185.00
64	55.00	67.00	87.00	102.00	115.00	133.00	150.00	161.00	179.00	193.00
68	64.00	77.00	98.00	113.00	127.00	144.00	161.00	173.00	190.00	205.00
72	74.00	87.00	104.00	121.00	135.00	154.00	172.00	185.00	203.00	219.00
76	77.00	91.00	118.00	132.00	149.00	170.00	189.00	205.00	220.00	237.00
80	83.00	103.00	121.00	136.00	154.00	175.00	195.00	211.00	227.00	244.00
84	90.00	111.00	130.00	146.00	165.00	187.00	208.00	225.00	242.00	260.00
88	94.00	118.00	140.00	159.00	180.00	203.00	225.00	244.00	262.00	279.00
92	113.00	133.00	156.00	175.00	196.00	220.00	242.00	262.00	281.00	298.00
96	118.00	139.00	162.00	228.00	255.00	287.00	315.00	341.00	365.00	383.00
102	135.00	164.00	236.00	262.00	297.00	335.00	368.00	400.00	427.00	472.00
108	151.00	176.00	252.00	280.00	315.00	355.00	389.00	422.00	450.00	476.00
114	171.00	196.00	281.00	312.00	347.00	389.00	442.00	475.00	506.00	533.00
120	189.00	216.00	308.00	349.00	391.00	438.00	481.00	520.00	566.00	604.00

Diameter in Inches	Number of Grooves									
	11	12	13	14	15	16	17	18	19	20
12	50.00	55.00								
14	52.00	57.00								
16	54.00	59.00								
18	61.00	66.00								
20	70.00	76.00	81.00	86.00	91.00	97.00	103.00	109.00	115.00	121.00
22	76.00	82.00	87.00	91.00	96.00	102.00	108.00	114.00	121.00	127.00
24	80.00	86.00	91.00	96.00	101.00	107.00	114.00	120.00	127.00	133.00
26	89.00	96.00	102.00	107.00	114.00	121.00	128.00	136.00	143.00	150.00
28	92.00	98.00	104.00	110.00	117.00	124.00	132.00	139.00	147.00	154.00
30	94.00	101.00	108.00	114.00	120.00	128.00	136.00	143.00	151.00	159.00
32	104.00	111.00	117.00	124.00	131.00	139.00	147.00	156.00	164.00	172.00
34	107.00	114.00	120.00	127.00	134.00	143.00	151.00	159.00	168.00	176.00
36	112.00	119.00	126.00	134.00	142.00	150.00	159.00	168.00	177.00	186.00
40	127.00	135.00	144.00	151.00	162.00	172.00	182.00	192.00	202.00	212.00
44	133.00	142.00	151.00	159.00	169.00	180.00	190.00	201.00	211.00	221.00
48	146.00	158.00	171.00	184.00	196.00	208.00	220.00	233.00	245.00	257.00
52	155.00	168.00	181.00	194.00	206.00	218.00	231.00	243.00	255.00	267.00
56	162.00	175.00	188.00	202.00	214.00	227.00	239.00	252.00	264.00	277.00
60	197.00	216.00	230.00	244.00	256.00	272.00	287.00	305.00	318.00	334.00
64	205.00	224.00	239.00	253.00	266.00	282.00	298.00	314.00	330.00	346.00
68	218.00	237.00	252.00	266.00	280.00	296.00	312.00	328.00	344.00	360.00
72	233.00	253.00	269.00	284.00	299.00	316.00	334.00	351.00	368.00	385.00
76	251.00	267.00	283.00	298.00	313.00	337.00	356.00	374.00	393.00	411.00
80	259.00	275.00	292.00	307.00	323.00	347.00	366.00	385.00	404.00	423.00
84	276.00	293.00	311.00	327.00	350.00	370.00	389.00	409.00	429.00	449.00
88	296.00	314.00	332.00	351.00	372.00	393.00	414.00	435.00	456.00	477.00
92	316.00	334.00	353.00	372.00	394.00	416.00	437.00	459.00	480.00	502.00
96	411.00	434.00	459.00	484.00	512.00	540.00	568.00	599.00	624.00	652.00
102	480.00	507.00	536.00	564.00	596.00	630.00	662.00	695.00	727.00	760.00
108	505.00	533.00	564.00	592.00	626.00	660.00	694.00	728.00	762.00	795.00
114	566.00	596.00	630.00	667.00	711.00	751.00	788.00	826.00	858.00	902.00
120	642.00	677.00	721.00	759.00	802.00	846.00	889.00	925.00	967.00	1011.00

All Sheaves 96 inches and over are made split unless otherwise ordered.

For list price of Split Sheaves under 96 inches diameter add 30 per cent to the above list.

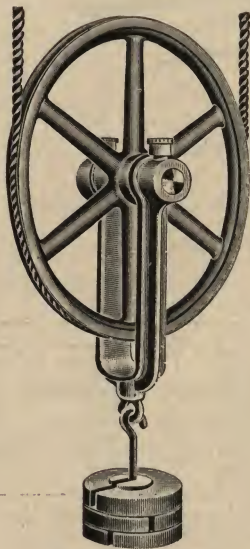
To the above prices add for Sheaves for ropes of larger diameters:

For the $1\frac{1}{2}$ " and $1\frac{3}{4}$ " rope add 20 per cent.

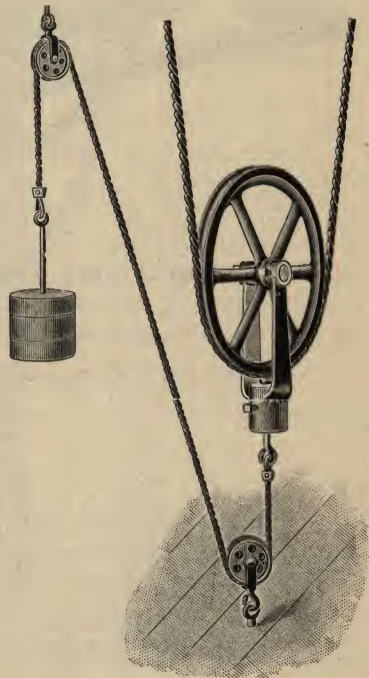
For $1\frac{7}{8}$ " rope add 40 per cent.

For $2\frac{1}{8}$ " rope add 60 per cent.

For 2" rope add 80 per cent.



Hanging Tension



Tied-Down Tension

Plain Tied-Down Tensions
FOR 3/4, 7/8, AND 1 INCH ROPE

Diameter of sheave-----	18"	24"	30"	36"	40"
Price -----	28.00	33.00	38.00	43.00	48.00

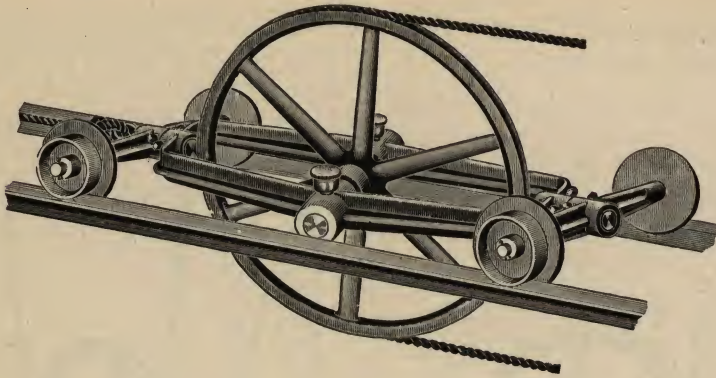
Prices include tail sheaves, wire rope, and 100 lbs. of weights. Extra weights will be charged at 2½ cents net per pound.

Hanging Plain Tensions
FOR 3/4, 7/8, AND 1 INCH ROPE

Diameter of sheave-----	18"	24"	30"	36"	40"
Price -----	23.00	28.00	33.00	38.00	43.00

The above prices include 100 lbs. of weights. Extra weights will be charged at 2½ cents net per pound.

The use of the above tensions should be limited to the smaller drives.



Horizontal Tension Carriages

FOR DOUBLE TRACK

The yoke of this tension carriage is adjustable, permitting sheave to be set at any angle.

FOR $\frac{3}{4}$, $\frac{7}{8}$, AND 1 INCH ROPE

Diameter of Sheave	Length of Travel					
	12'	18'	24'	30'	36'	40'
18"	75.00	83.00	91.00	99.00	107.00	112.00
24"	82.00	90.00	98.00	106.00	114.00	119.00
30"	87.00	95.00	103.00	111.00	119.00	124.00
36"	92.00	100.00	108.00	116.00	124.00	129.00
40"	97.00	105.00	113.00	121.00	129.00	134.00
44"	102.00	110.00	118.00	126.00	134.00	139.00
48"	110.00	118.00	126.00	134.00	142.00	147.00
54"	120.00	128.00	136.00	144.00	152.00	157.00
60"	132.00	140.00	148.00	156.00	164.00	169.00

The above prices include track, 250 pounds of weights, wire cable twice the length of travel, and two well sheaves. Additional weights will be charged at $2\frac{1}{2}$ cents net per pound.

FOR $1\frac{1}{4}$ INCH ROPE

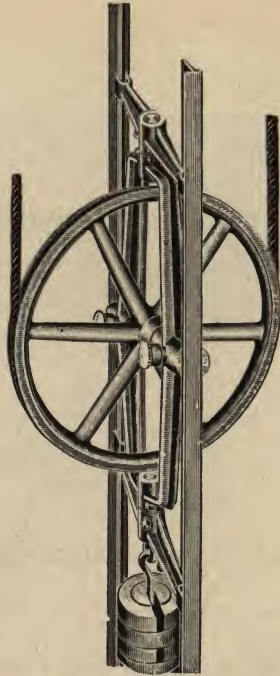
Diameter of Sheave	Length of Travel					
	12'	18'	24'	30'	36'	40'
24"	90.00	98.00	106.00	114.00	122.00	127.00
30"	96.00	104.00	112.00	120.00	128.00	133.00
36"	102.00	110.00	118.00	126.00	134.00	139.00
42"	112.00	120.00	128.00	136.00	144.00	149.00
48"	122.00	130.00	138.00	146.00	154.00	159.00
54"	133.00	141.00	149.00	157.00	165.00	170.00
60"	146.00	154.00	162.00	170.00	178.00	183.00

The above prices include track, 350 pounds of weights, wire cable twice the length of travel and two well sheaves. Additional weights will be charged at $2\frac{1}{2}$ cents net per pound.

FOR $1\frac{1}{2}$ INCH ROPE

Diameter of Sheave	Length of Travel					
	12'	18'	24'	30'	36'	40'
36"	111.00	119.00	127.00	135.00	143.00	148.00
42"	121.00	129.00	137.00	145.00	153.00	158.00
48"	131.00	139.00	147.00	155.00	163.00	168.00
54"	142.00	150.00	158.00	166.00	174.00	179.00
60"	155.00	163.00	171.00	179.00	187.00	192.00

The above prices include track, 500 pounds of weights, wire cable twice the length of travel, and two well sheaves. Additional weights will be charged at $2\frac{1}{2}$ cents net per pound.



Vertical Tension Carriages With Guides

This Tension Carriage is provided with an adjustable yoke in which the Sheave runs. The guides are made of T iron the lengths contained in price list.

The prices include 100 lbs. weights. Extra weights will be charged at 2½ cents net per pound.

FOR ¾, ⅞, AND 1 INCH ROPE

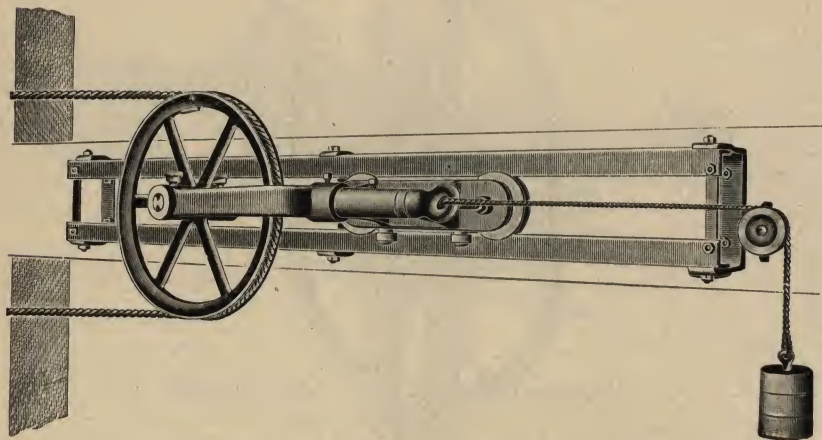
Diameter of Sheave	Length of Travel							
	8'	12'	16'	20'	24'	30'	36'	42'
24"	58.00	64.00	70.00	76.00	82.00	91.00	100.00	109.00
30"	63.00	69.00	75.00	81.00	87.00	96.00	105.00	114.00
36"	72.00	78.00	84.00	90.00	96.00	105.00	114.00	123.00
42"	78.00	84.00	90.00	96.00	102.00	111.00	120.00	129.00
48"	84.00	90.00	96.00	102.00	108.00	117.00	126.00	135.00
54"	93.00	99.00	105.00	111.00	117.00	126.00	135.00	144.00
60"	111.00	117.00	123.00	129.00	135.00	144.00	153.00	162.00

FOR 1¼ INCH ROPE

Diameter of Sheave	Length of Travel							
	8'	12'	16'	20'	24'	30'	36'	42'
30"	66.00	72.00	78.00	84.00	90.00	99.00	108.00	117.00
36"	78.00	84.00	90.00	96.00	102.00	111.00	120.00	129.00
42"	87.00	93.00	99.00	105.00	111.00	120.00	129.00	138.00
48"	96.00	102.00	108.00	114.00	120.00	129.00	138.00	147.00
54"	102.00	108.00	114.00	120.00	126.00	135.00	144.00	153.00
60"	117.00	123.00	129.00	135.00	141.00	150.00	159.00	168.00

FOR 1½ INCH ROPE

Diameter of Sheave	Length of Travel							
	8'	12'	16'	20'	24'	30'	36'	42'
36"	85.00	91.00	97.00	103.00	109.00	118.00	127.00	136.00
42"	98.00	99.00	105.00	111.00	117.00	126.00	135.00	144.00
48"	102.00	108.00	114.00	120.00	126.00	135.00	144.00	153.00
54"	111.00	117.00	123.00	129.00	135.00	144.00	153.00	162.00
60"	126.00	132.00	138.00	144.00	150.00	159.00	168.00	177.00



Horizontal Side Tension Carriages

We recommend this style Tension Carriage where it is desirable to economize space at the sides of the drives.

FOR $\frac{3}{4}$, $\frac{7}{8}$, AND 1 INCH ROPE

Diameter of Sheaves	Length of Travel							
	8'	10'	12'	14'	16'	18'	20'	22'
18"	64.00	66.00	68.25	70.50	73.00	75.50	78.00	81.00
24"	69.00	71.00	73.25	75.50	78.00	80.50	83.00	86.00
30"	74.00	76.00	78.25	80.50	83.00	85.50	88.00	91.00
36"	80.00	82.00	84.25	86.50	89.00	91.50	94.00	97.00

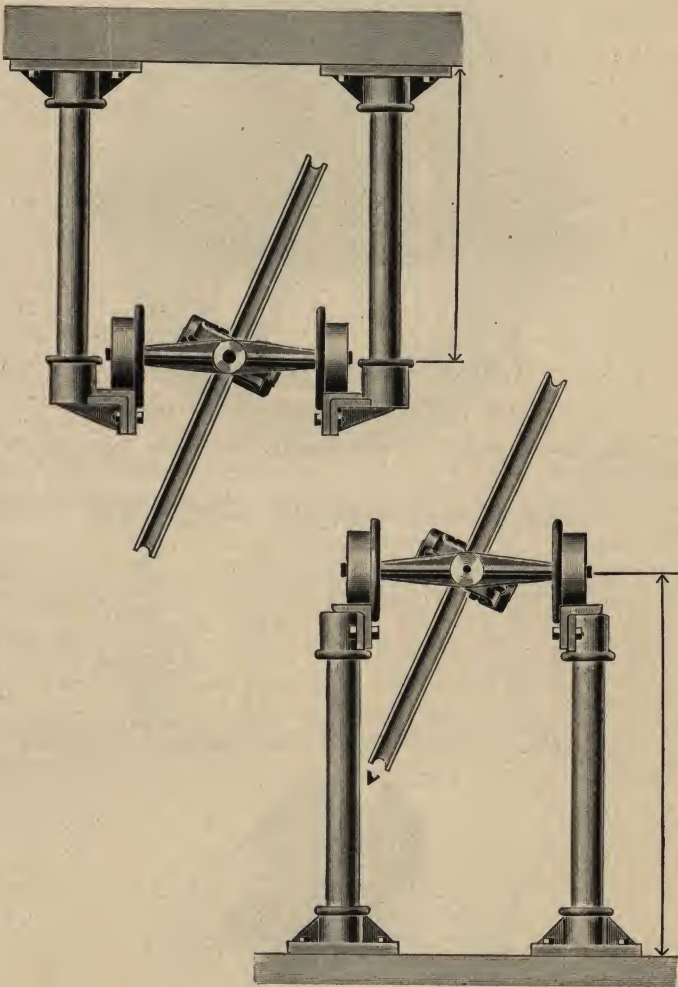
The above prices include track, 200 pounds of weights, two well sheaves and 15 feet wire cable plus length of travel. Additional weights will be charged at $2\frac{1}{2}$ cents net per pound.

Tension Carriage Fixtures



Swivel Pull-Back Sheaves..... 2.75

Swinging Pull-Back Sheaves..... 2.75



Track Hangers and Floor Stands

FOR HORIZONTAL TENSION CARRIAGES

HANGERS OR FLOOR STANDS

Size	Price Each			
	12"	18"	24"	30"
For 18" to 36" sheaves.....	6.00	7.00	8.00	9.50
For 42" to 60" sheaves.....	7.00	8.50	10.00	12.00



Tallow Laid Manila Rope FOR TRANSMISSION PURPOSES

We carry a large stock of specially selected extra long fibre Manila Rope, carefully laid up in a lubricant which prevents its wearing and chafing. It is especially adapted for power transmission.

Diameter	Price per Foot	Weight of 100 Feet in lbs.	Strength of New Rope in lbs.	Length of Rope in 1 pound
3/4	.06 1/2	11	2,250	9' 2"
7/8	.07 1/2	15	4,000	6' 8"
1	.10 1/2	20	5,000	5'
1 1/4	.13	25	7,500	4'
1 1/2	.17	33	9,000	3'
1 3/4	.24	41	12,250	2' 6"
1 7/8	.28	50	14,000	2'
2	.33	62	18,062	1' 8"
2 1/4	.38	75	20,250	1' 3"
2 1/2	.47	95	25,000	1' 1"
2 3/4		115	30,250	10 1/2"
3		142	36,000	9 1/2"



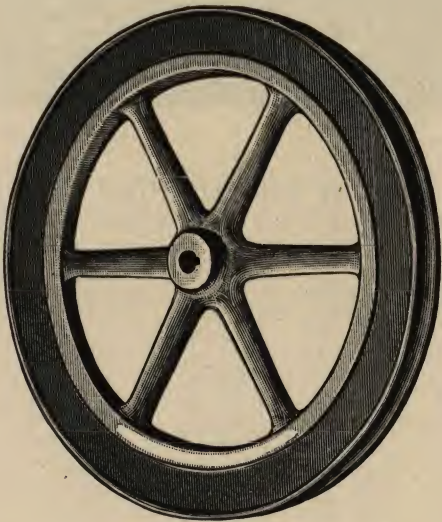
"Magnolia" Rope Dressing FOR MANILA TRANSMISSION ROPES

Our Magnolia Rope Dressing is the only lubricant that penetrates into the center of the rope and prevents internal wear, as well as lubricates the exterior, and protects it from any slight chafing of the pulleys.

The following quotation from a professor of mechanical engineering who has made careful, actual tests will convince you of the importance of lubrication. He says: "A manila rope with the fiber properly lubricated, will, under the same conditions, outlast from two to four similar dry ropes."

Put up in 5 and 10 pound tin cans.

Price per pound..... .50

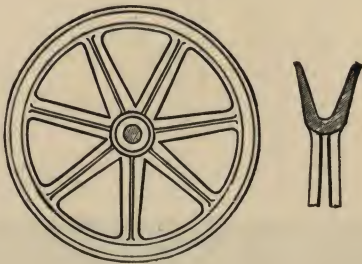


Wire Rope Transmission Sheaves
RUBBER FILLED

Diameter	Price	Diameter	Price	Diameter	Price
1½'	12.00	4'	34.00	8'	100.00
2'	15.00	4½'	42.00	9'	140.00
2½'	20.00	5'	50.00	10'	200.00
3'	25.00	6'	64.00	11'	250.00
3½'	28.00	7'	80.00	12'	280.00

Rubber Lining for Transmission Sheaves

Price-----per pound -----



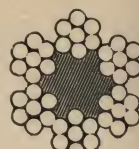
Heavy Solid Iron Hoisting Wheels
WITH TURNED GROOVES

Diameter -----	3'	4'	5'	6'
Price -----	26.00	34.00	50.00	75.00

Special prices for larger wheels with wrought or cast iron arms and grooves turned, wood lined or rubber lined.

Hoisting
Rope

WIRE ROPE

Transmission
Rope

Swedes Iron Hoisting Rope

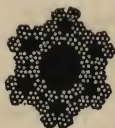
6 STRANDS, 19 WIRES EACH, HEMP CENTER

Diameter in inches	List price per foot	Circumference in inches	Approximate Weight per foot, pounds	Approximate Strength in tons of 2000 lbs.	Proper Work- ing Load in tons of 2000 lbs.	Diameter of Drum or Sheave in feet advised
2 3/4	1.70	8 1/2	11.95	111	22.2	17
2 1/2	1.40	7 7/8	9.85	92	18.4	15
2 1/4	1.17	7 1/2	8	72	14.4	14
2	.95	6 3/4	6.30	55	11	12
1 7/8	.88	5 3/4	5.55	50	10	12
1 3/4	.80	5 1/2	4.85	44	8.8	11
1 1/2	.65	5	4.15	38	7.6	10
1 1/4	.57	4 3/4	3.55	33	6.5	9
1 1/8	.49	4 1/4	3	28	5.6	8.5
1 1/2	.40	4	2.45	22.8	4.56	7.5
1 1/4	.33	3 3/4	2	18.6	3.72	7
1 1/8	.26	3	1.58	14.5	2.90	6
1 1/4	.20	2 3/4	1.20	11.8	2.36	5.5
1 1/8	.16	2 1/4	.89	8.5	1.70	4.5
1 1/4	.12	2	.62	6	1.20	4
1 1/8	.10	1 3/4	.50	4.7	.94	3.5
1 1/4	.08 1/2	1 1/2	.39	3.9	.78	3
1 1/8	.07 1/2	1 1/4	.30	2.9	.58	2.75
1 1/4	.07	1 1/8	.22	2.4	.48	2.25
1 1/8	.06 3/4	1 1/8	.15	1.5	.30	2
1 1/4	.06 1/2	1 1/4	.10	1.1	.22	1.50

Swedes Iron Transmission Rope

6 STRANDS, 7 WIRES EACH, HEMP CENTER

Diameter in inches	List price per foot	Circumference in inches	Approximate Weight per foot, pounds	Approximate Strength in tons of 2000 lbs.	Proper Work- ing Load in tons of 2000 lbs.	Diameter of Drum or Sheave in feet advised
1 1/2	.51	4 3/4	3.55	32	6.4	16
1 1/4	.43	4 1/4	3	28	5.6	15
1 1/8	.36	4	2.45	23	4.6	13
1 1/4	.30	3 3/4	2	19	3.8	12
1 1/8	.24	3	1.58	15	3	10.5
1 1/4	.18 1/2	2 3/4	1.20	12	2.4	9
1 1/8	.14	2 1/4	.89	8.8	1.7	7.5
1 1/4	.12	2 1/8	.75	7.3	1.5	7.25
1 1/8	.10	2	.62	6	1.2	7
1 1/4	.08 1/2	1 3/4	.50	4.8	.96	6
1 1/8	.06 3/4	1 1/2	.39	3.7	.74	5.5
1 1/4	.06 1/2	1 1/4	.30	2.6	.52	4.5
1 1/8	.04 3/4	1 1/8	.22	2.2	.44	4
1 1/4	.03 3/4	1	.15	1.7	.34	3.5
1 1/8	.03 1/2	3/4	.12 1/2	1.2	.24	3



Swedes Iron Wire Tiller Rope

Tiller ropes are the most flexible of all wire ropes, and are almost universally used as hand ropes on store elevators and hoists.

Diameter	inches	1/4	1/8	3/16	1/2	3/4	1	1 1/4	1 1/2	1 3/4	2
Price	per foot	.07 1/2	.08	.09	.10	.11 1/2	.14	.17	.22	.27	.33



Hoisting
Rope



Transmission
Rope

Crucible Steel Hoisting Rope

6 STRANDS, 19 WIRES EACH, HEMP CENTER

Diameter in inches	List price per foot	Circumference in inches	Approximate Weight per foot, pounds	Approximate Strength in tons of 2000 lbs.	Proper Work- ing Load in tons of 2000 lbs.	Diameter of Drum or Sheave in feet advised
2 3/4	2.10	8 5/8	11.95	211	42.2	11
2 3/8	1.75	7 7/8	9.85	170	34	10
2 1/4	1.44	7 1/8	8	133	26.6	9
2	1.16	6 3/4	6.30	106	21.2	8
1 7/8	1.02	5 7/8	5.55	96	19	8
1 3/4	.90	5 1/8	4.85	85	17	7
1 3/8	.77	5	4.15	72	14.4	6.5
1 3/4	.66	4 3/4	3.55	64	12.8	6
1 3/8	.56	4 1/4	3	56	11.2	5.5
1 1/4	.46	4	2.45	47	9.4	5
1 3/8	.38	3 3/4	2	38	7.6	4.5
1 1/4	.31	3	1.58	30	6	4
1 1/8	.24	2 5/8	1.20	23	4.6	3.5
1 1/8	.19	2 1/4	.89	17.5	3.5	3
1 1/8	.14	2	.62	12.5	2.5	2.5
1 1/8	.12	1 7/8	.50	10	2	2.25
1 1/8	.11	1 3/4	.39	8.4	1.68	2
1 1/8	.10	1 3/4	.30	6.5	1.30	1.75
1 1/8	.09 1/2	1 3/4	.22	4.8	.96	1.50
1 1/8	.09 1/4	1	.15	3.1	.62	1.25
1 1/8	.09	3/4	.10	2.2	.44	1

Crucible Steel Haulage and Transmission Rope

6 STRANDS, 7 WIRES EACH, HEMP CENTER

Diameter in inches	List price per foot	Circumference in inches	Approximate Weight per foot, pounds	Approximate Strength in tons of 2000 lbs.	Proper Work- ing Load in tons of 2000 lbs.	Diameter of Drum or Sheave in feet advised
1 3/4	.60	4 3/4	3.55	63	12.6	11
1 3/8	.51	4 1/4	3	53	10.6	10
1 3/4	.43	4	2.45	46	9.2	9
1 3/8	.36	3 3/4	2	37	7.4	8
1 1/4	.29	3	1.58	31	6.2	7
1 1/8	.22 1/2	2 5/8	1.20	24	4.8	6
1 1/8	.17	2 1/4	.89	18.6	3.7	5
1 1/8	.14 1/2	2 1/8	.75	15.4	3.1	4 1/2
1 1/8	.12	2	.62	13	2.6	4 1/2
1 1/8	.10	1 7/8	.50	10	2	4
1 1/8	.08	1 3/4	.39	7.7	1.5	3 1/2
1 1/8	.06 1/2	1 3/4	.30	5.5	1.1	3
1 1/8	.05 1/2	1 3/4	.22	4.6	.92	2 1/2
1 1/8	.04 1/2	1	.15	3.5	.70	2 1/2
1 1/8	.04	3/4	.12 1/2	2.5	.50	1 1/2



Galvanized Wire Strand

Galvanized Strand is composed of seven steel wires twisted into a single strand, and is used for smokestack guys, electric light plants, street railways and other purposes.

Diameter	Inches	3/8	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	1 1/2
Price	per 100 feet	.80	1.00	1.15	1.25	1.75	2.25	3.50	4.50	5.50
Weight per 100 feet	lbs.	2 1/2	3 1/2	5	8	13	22	30	40	52



Open Socket



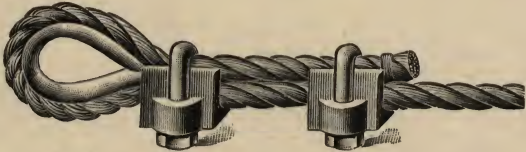
Closed Socket

Open Sockets For Steel Rope

Diameter	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{5}{8}$ "	$\frac{3}{4}$ "	$\frac{7}{8}$ "	1"	$1\frac{1}{8}$ "
Loose	.85	1.10	1.35	1.65	1.85	2.40	3.30
Fastened	1.85	2.25	2.65	3.15	3.85	4.65	6.15
Diameter	$1\frac{1}{4}$ "	$1\frac{3}{8}$ "	$1\frac{1}{2}$ "	$1\frac{5}{8}$ "	$1\frac{3}{4}$ "	2"	$2\frac{1}{4}$ "
Loose	4.50	6.00	6.80	12.00	13.00	16.00	21.00
Fastened	8.00	10.25	11.80	18.00	21.00	25.50	32.00

Closed Sockets For Steel Rope

Diameter	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{5}{8}$ "	$\frac{3}{4}$ "	$\frac{7}{8}$ "	1"	$1\frac{1}{8}$ "
Loose	1.00	1.35	1.65	2.10	2.50	3.15	4.50
Fastened	2.00	2.50	2.95	3.60	4.50	5.40	7.35
Diameter	$1\frac{1}{4}$ "	$1\frac{3}{8}$ "	$1\frac{1}{2}$ "	$1\frac{5}{8}$ "	$1\frac{3}{4}$ "	2"	$2\frac{1}{4}$ "
Loose	6.10	7.50	8.00	13.00	15.50	16.50	23.00
Fastened	9.60	11.75	13.00	19.00	23.50	26.00	34.00



Crosby Wire Rope Clips

Diameter of rope-----inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{1}{2}$	
Price -----each	.35	.35	.40	.45	.55	.65	.75	.85	.95	1.10	1.25	1.50



Extra Heavy Oval Galvanized Thimbles

Diameter of rope—Inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{1}{2}$		
Price -----each	.08	.08	.09	.10	.11	.13	.15	.16	.20	.25	.33	.42	.50

Labor Splicing Wire Rope Endless

Diameter of rope—	$1\frac{1}{4}$ to $1\frac{1}{2}$	$1\frac{1}{8}$ to $\frac{3}{4}$	$\frac{5}{8}$ to $\frac{3}{4}$	$\frac{7}{8}$ to $\frac{1}{2}$	$\frac{1}{2}$ to $\frac{1}{4}$
Price —————	4.50	4.00	3.50	3.00	2.50

The above charges are for labor in making splices at factory and do not include the additional 20 to 30 feet of rope used in making the splice.

Exact lengths of endless transmission rope should be specified, or else the exact distance from center to center of wheels, together with circumference of wheels.



Link Belting

Link Belting should be used with the backs of the hooks to the sprocket wheels, as it is generally calculated to fit the pitch of the sprocket wheels upon that side; but it may be run with the open side of the hooks to the wheel, where one or more wheels in a series require it, as in the case of an idler or tightening wheel, but it is always best to plan an idler to run on the slack portion of the Chain Belt. Do not set an idler too hard against the Chain Belt, nor run it too tight, as the positive action renders it unnecessary to strain it as tightly as a friction belt. At first it should be held firmly to the wheels by the idlers, but slackened when limber and smooth.

Chains should generally be kept oiled, but when used in exposure to sand, grit or any cutting dirt, then good black lead is better.

Before using an old and worn Chain Belt on a new Sprocket Wheel, always correct the pitch or length of the old Chain Belt to fit the new wheel. The old Chain Belt will have lengthened by wearing, and each individual link should be shortened a little by striking a blow or two with a suitable hammer on the end of the hook. This will fold the hook over and close it a trifle, and thus each link can be shortened and the pitch restored to the proper length to fit the new wheel.

It will be understood that Chain Belt by constant use wears and lengthens, while the Sprocket wheel wears and gets smaller; therefore it is essential to correct the pitch of the Chain Belt occasionally, and restore the proper operating fit between the wheel and the Chain Belt, as above mentioned.

Number	Plain Links per Foot	Links per Foot	Couplers, Each	Maximum Power, Lbs.
25	.11	13.3	.11	75
32	.11	10.4	.14	150
33	.11	8.6	.13	200
34	.11	8.6	.13	225
35	.11	7.4	.16	250
42	.12	8.8	.16	300
45	.11	7.4	.16	350
51	.17	10.4	.16	375
52	.18	8.	.16	500
55	.16	7.4	.16	450
57	.18	5.2	.19	600
62	.22	7.3	.22	650
66	.23	6.	.22	700
67	.23	5.2	.22	700
75	.24	4.6	.19	750
77	.25	5.2	.22	800
78	.34	4.6	.25	1000
85	.44	3.	.44	1300
88	.43	4.6	.28	1200
95	.53	3.	.54	1600
103	.67	4.	.58	1800
105	.49	2.		1500
108	.63	2.55	.70	2000
114	.85	3.7	.84	2000
122	1.13	2.	1.58	2200
124	1.03	3.	1.19	2200
146	1.02	2.	1.20	2800



Chain Belt Coupler

We invite special notice to our Coupler for Detachable Chain Belt. This is a very convenient device to place and connect Chain Belt around the wheels and have it without slack and is equally desirable in taking it off the wheels.

Link Belt Attachments

The following cuts show in a reduced size, various sizes of special links. Other styles than these shown can be furnished and prices quoted on application.



A1 Left



A1 Right



A2



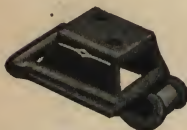
C1



D5



E1



E2



F2



G1



G6



H1



H2

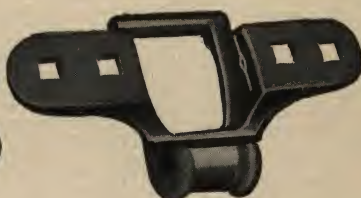
Link Belt Attachments



K1



K2



K3



K5



K6



K7



L1



L2



M1



M3



R1



R2



S1



S2

Many other styles are furnished. Write us if we do not show what you want.

Link Belt Attachments

PRICE PER FOOT

No. 25		No. 32		No. 42		No. 45	
*A1	.21	*U	.18	*R9	.32	Picker	.44
*A3	.22	*U1	.19	*S1	.25	Tube, each	.05
*A4	.19	Hookless	.09	*S3	.71		
A39	.20			*Scraper No. 2 8c each		No. 51	
A60	.60			*Scraper No. 6 5c each			
A399	.18	No. 33		No. 45		*A1	.25
*C3	.21	*A1	.17			C1	.41
*C3	.23	*A3	.20			C14	.62
*C1	.29	*A6	.22	*A1	.20	D4	.69
C26	.43	*A13	.22	A2	.25	*15	.42
10-C-66	.25	*A14	.27	*A3	.23	16	.32
*D3	.26	A29	.26	A10	.20	*K1	.32
D8	.72	*C1	.26	*A12	.25	*K5	.33
D28	.17	*D3	.39	A13	.25	K7	.43
D34	.24	D5	.20	*A14	.31	*R18	.32
D46	.25	D16	.72	A15	.26	*S1	.28
*E1	.21	*D33	.25	A29	.22	S3	.48
*E3	.36	E1	.18	A33	.39		
E16	.28	G1	.21	A37-LA	.31	No. 52	
*G1	.28	*I3	.33	*Strap	.18	AA	.33
G13	.59	*K1	.25	*C1	.27	*A1	.28
*H2	.28	*K3	.39	*C15	.34	*A3	.34
H16	.41	*K5	.25	*C20	.38	A14	.59
H22	.24	*K6	.35	*C22	.52	*C1	.33
HO2	.42	K11	.41	C27	.38	D3	.39
HO5	.34	*K12	.25	*C28	.42	D4	.63
HHH	.23	L2	.23	D1	.58	D5	.45
I3	.34	*M1	.29	*D3	.34	*D12	.37
*IK	.25	*S1	.25	*D5	.32	D13	.40
*K1	.26	No. 34		D6	.32	DK Roller	1.13
*K5	.23	*A1	.21	D17	.43	*E1	.33
*K6	.29	A2	.27	D42	.25	E3	.31
*L1	.21	*C1	.33	D43	.30	*F2	.43
*L2	.20	*C2	.37	*D45	.18	*G1	.32
M1	.27	*C21	.46	DK with Roller	1.20	I20	.33
*O1	.23	E0	.43	*E1	.21	K1	.33
*O2	.27	*E1	.24	E2	.24	*K1	.35
*R4	.26	*K1	.29	E4	.18	*K5	.32
*R16	.30	*K6	.39	*E12	.14	*K50	1.27
*R26	.18	K37	.49	*F2	.27	R19	.25
*R27	.22	K37 1/2	.49	*FK	.39	*R20	.31
*R28	.28	K38 1/2	.53	*G1	.23	*S1	.32
R29	.22	L1	.24	G27	.32	*S2 1/2	.43
*S1	.27	No. 35		H1	.32	*Scraper, each	.18
*S9	.62	*A1	.23	*H2	.35	*Scrap. 1 1/2 x 7/8, each	.26
*U	.20	A2	.32	I3	.30	No. 55	
*U1	.23	A13	.27	I12	.28	*A1	.25
*W3	.24	A14	.27	I15	.28	A2	.32
*W30	.19	A29	.27	I15 1/2	.48	A3	.32
Hookless	.09	*AM	.33	I17	.26	A11 1/2	.23
No. 32		*C1	.32	*K1	.31	A12 1/2	.45
*A1	.24	*DK Roller	1.65	K1 Coupler, pair	.34	A14	.35
A2	.25	*E1	.25	*K3	.25	A15	.29
*A3	.21	*K1	.32	*K5	.26	A41	.42
*A12	.27	*K3 1/2	.39	K34	.43	AD5	.45
A12 1/2	.37	*K5	.30	*K40 1/2	.45	*C1	.31
*C1	.32	*S1	.25	K44	.27	C5	.43
C5	.38	Scraper No. 1 9c each		K45 1/2	.80	*C8	.45
*D3	.27	No. 42		K48	.34	C17	.57
D46	.16	*A1	.21	*L2	.22	C18	.42
E1	.21	A1 Coupler pair	.26	L3	.24	C20	.56
ED	.59	*A3	.32	L4	.19	C28	.60
*G1	.25	A3 Coupler pair	.32	*M0	.26	CH	.32
I3	.30	A6	.21	*M1	.25	D3	.53
*K0	.43	A14	.34	M5	.35	D5	.35
*K1	.30	A15	.29	*P4	.39	D41	.66
*K3	.39	A29	.25	*P4 1/2	.35	DK Roller	1.07
*K5	.23	*C1	.29	*R18	.25	*E1	.25
*K6	.38	DK Roller	1.39	*S1	.23	ES	.34
K36	.32	*D3	.42	*S5	.24	*F2	.35
*K40	.62	E1	.20	S6	.24	G27	.35
L1	.27	I13	.22	Scraper		*G Double	.88
*L2	.23	*K1	.26	*No. 1	.08	151	.39
*M1	.32	*K3	.37	No. 2, 4 in.	.07	K53	.34
*O1	.21	*K3 1/2	.70	No. 2, 5 in.	.08	*K1	.28
*O2	.25	K5	.24	No. 2, 6 in.	.09	*K5	.30
*O3	.28	*K6	.37	*No. 2, 6 1/2 in.	.10	K40 1/2	.52
*R9	.34	*K6 1/2	.88	No. 3	.06	K40 5/8	.56
*S9	.41	*K10	.22	No. 4	.10	K52	.32
		L6	.71	No. 6	.11	*L2	.25

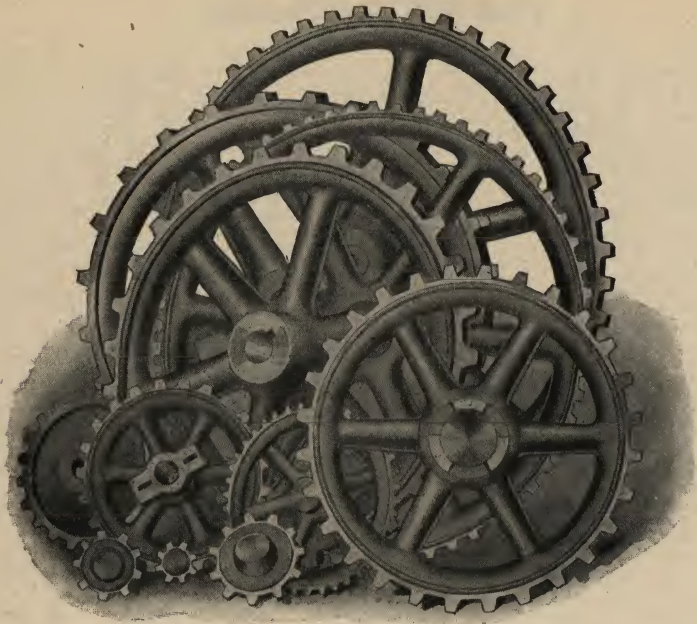
Attachments marked * are usually in stock, others made to order.

Link Belt Attachments

PRICE PER FOOT

No. 55		No. 75		No. 85		No. 103	
*L2 ₁	.23	G1	.52	F1	.98	*F2	1.11
*M0	.30	*H1	.45	*F2	.92	*F3	1.42
*M1	.23	H1	.54	*F5	.92	*F8	1.26
M5	.55	*H2	.45	FF	.81	F20	1.23
*S1	.25	*H3	.51	*FF ₁	.89	*G6	1.13
*S5	.30	*H4	.62	F8	1.06	*G10	1.13
Scraper, each	.11	H4 ₁	1.13	*G6	.71	*G19	1.09
Toothed Scraper,		H4 ₁	1.32	*H1	.72	G22	1.67
each	.56	*K1	.39	H2	.78	*H1	.95
Hookless	.11	KB1	.67	*K2	.72	*H2	1.02
A3 Hookless	.28	*R1	.29	K2	.70	*H3	1.23
No. 57		*R2	.29	K3	.85	H14	1.35
*A1	.30	*R8	.34	*K4	.80	*K1	.95
*A3	.33	No. 77		*K7	.73	K1 Coupler, pair	.97
C1	.30	*A1	.37	M3	.78	K2	.99
C4	.21	A12	.55	S1	.89	*K8	.96
*D5	.37	A23	.49	*S2	.64	L2	1.26
D25	.25	*D6 ₁	.54	S5	.90	*M3	1.16
*EA1	.39	DK	.84	No. 88		M11	.97
*EA2	.33	*E1	.38	A1	.70	R1	.82
E1	.27	*E2	.33	*A3	.70	W1	1.10
E2	.27	F1	.50	*A7	.63	W2	1.10
F1	.44	*F2	.64	*A11	.60	*Scraper, each	.61
*F2	.43	*G1	.48	C1	.77	No. 105	
*H1	.41	G6	.51	D5	.67	*F1	.69
*H2	.44	*G19	.51	*DH	1.30	H4-8-in.	1.55
*K1	.35	*H1	.48	*DF12	1.45	H22	1.72
*K1 Coupler pair	.44	H2	.51	*DF14	1.37	H24	1.52
*M3	.41	K1	.58	*DK	1.38	*K2	.97
M5	.41	*K1	.42	E1	.64	*M3	1.14
*S2	.32	K1 Coupler, pair	.44	F1	.60	R1	.87
*Tube, each	.05	K3	.54	*F2	.80	No. 108	
No. 62		K8	.45	*F4	.71	*F2	1.18
A ₁	.34	M1	.68	*F8	.89	FF	1.12
*A1	.32	*M3	.54	*F12	.87	G1	.97
A2	.33	*R1	.32	*F14	.77	H2	.95
*A3	.34	*R3	.36	GX	.90	*K2	1.02
A12	.39	*S2	.39	*G1	.66	K5 Coupler, pair	1.32
A33	.38	No. 78		*G6	.73	R2	1.40
*C1	.39	*A1	.46	*G8	.72	No. 114	
*D5	.45	A3	.59	G10	1.23	*A2	1.20
I3	.43	*A11	.50	G19	.81	*A11	1.06
K ₁	.35	A11 ₁	.56	*H1	.76	A24	1.10
*K1	.35	*A16	.85	H2	.92	DD	1.55
*K5	.33	A33	.62	H5	.78	F2	1.35
K40	.42	A63	.61	*H6	1.13	F8	1.33
*L4 ₁	.43	*C4 ₁	.39	H9	.64	F12	1.66
S1	.32	D5	.65	H14	.83	G6	1.66
S2 ₁	.48	D12	.87	*H15	1.17	*K1	1.21
Loop, each	.06	*E1	.47	*H16	.72	L2	1.47
No. 66		*F2	.70	*K1	.61	*M1	1.41
*C1	.40	*F4	.71	K1 Coupler pair	.91	N1	1.28
K1	.48	F8	.67	K5	.75	No. 122	
No. 67		FF	.73	*K8	.86	*F2	1.58
*A1	.32	*G1	.59	R1	.51	*K2	1.66
A7	.37	G6	.68	R2	.51	No. 124	
*A11	.48	*G19	.66	R8	.54	A4	1.40
A72	.34	G60	.60	*R30	.53	A4 Coupler, pair	1.58
*D5	.43	H1	.66	S2	.62	A11	1.45
*D26	.45	H2	.70	*S2 ₁	.59	D5	1.73
E1	.37	H6	1.01	Scraper, each	.32	F2	1.54
EM	.41	H22	1.03	No. 95		F8	1.84
F2	.48	*K1	.47	*F2	.10	G1	1.47
*F16	.58	*K3	.66	H1	.86	G6	1.58
FF	.49	K111	.86	H2	.96	*K1	1.56
*FF ₁	.50	*M3	.70	*K2	.84	KM3	2.05
*G1	.50	R1	.44	No. 103		*M3	1.59
H1	.50	R3	.50	A1	.91	R1	1.21
*K1	.40	*R8	.45	A4	.94	No. 146	
*K3	.53	R20	.62	A4 Coupler, pair	.97	*E2	1.37
*S2	.35	*R30	.46	A11	.91	*F2	1.49
*Tube, each	.06	RR	.61	A11 ₁	1.11	F5	1.46
*Scraper, 2x7 $\frac{1}{2}$, ea	.27	*S2	.52	A24	.98	K2	1.76
No. 75		No. 85		D5	1.02	K4	1.46
C4	.29	C3	.72	D26	1.10		
*E1	.36	*EO	.96	DD	1.40		
*F2	.52	*E1	.69	DDM3	1.72		
		E2	.72	E1	.94		

Attachments marked * are usually in stock, others made to order.



Sprocket Wheels

In ordering, always state the number of teeth in a wheel.

Some wheels can be used with several sizes of Chain Belt; for example, No. 35, 45, 55; 57, 67, 77; 85, 94, 95; etc.

Wheels can be bored to almost any size and can be made to order to vary from our regular standard wheels with shorter or longer hub on one side, or both sides, or be made with a clutch of any preferred pattern at special prices.

Wheels are bored, set-screwed or key-seated as ordered, but in absence of any full directions we usually fit them with set screws. Sometimes they are fitted with both key seat and set screw, to prevent any movement sideways upon the shaft, at extra charge.

Sprocket wheels can be fitted with friction or jaw clutches when so ordered at extra cost. See additional prices for Split Sprocket Wheels.

The bore at the head of each wheel list represents the maximum bore to which standard discounts apply. For all wheels having bores larger than those specified, add the following amounts to the list prices:

When Listed Bore Is	Add to the List Price for Larger Bore as Below									
	1½"	2½"	2½"	3½"	3½"	4½"	4½"	5½"	5½"	6½"
1½"	.25	.62	1.12	1.75	2.50	-----	-----	-----	-----	-----
1½"	.25	.50	1.00	1.62	2.37	-----	-----	-----	-----	-----
1½"	-----	.37	.90	1.55	2.30	3.12	-----	-----	-----	-----
2½"	-----	-----	.50	1.40	2.40	3.40	4.50	-----	-----	-----
2½"	-----	-----	-----	.75	1.95	3.30	4.80	6.30	-----	-----
3½"	-----	-----	-----	-----	1.05	2.70	4.40	6.30	8.50	-----
3½"	-----	-----	-----	-----	-----	1.35	3.50	5.70	8.20	10.80
4½"	-----	-----	-----	-----	-----	-----	1.50	3.80	6.30	9.00
4½"	-----	-----	-----	-----	-----	-----	-----	1.80	4.70	7.80
4½"	-----	-----	-----	-----	-----	-----	-----	-----	-----	11.20

All published wheel prices are based on hub length not exceeding twice the diameter of bore. When hubs are proportionately longer, or when bores are larger than specified above, additional charges will be made. An extra charge is made for splitting wheels having bores larger than specified, and for furnishing plate center wheels from patterns which regularly have arms.

Sprocket Wheels

No. 25 Bore 1 $\frac{1}{8}$ in. (See Foot Note)			No. 32 (Continued)			Nos. 35, 45 and 55 Bore 1 $\frac{1}{8}$ in. (See Foot Note)								
Pitch Diameter, Inches	No. of Teeth	Price	Pitch Diameter, Inches	No. of Teeth	Price	Pitch Diameter, Inches	No. of Teeth	Price						
1 $\frac{1}{8}$	5	1.10	14 $\frac{1}{2}$	40	3.10	2 $\frac{1}{2}$	5	1.50						
1 $\frac{3}{8}$	6	1.15	16 $\frac{1}{2}$	44	3.35	3	6	1.60						
2	7	1.15	16 $\frac{1}{2}$	45	3.40	3 $\frac{1}{2}$	7	1.70						
2 $\frac{1}{8}$	8	1.20	20 $\frac{1}{2}$	55	3.90	4 $\frac{1}{2}$	8	1.80						
2 $\frac{1}{4}$	9	1.20	24	65	4.40	4 $\frac{3}{4}$	9	1.90						
3	10	1.25	Nos. 33 and 34 Bore 1 $\frac{1}{8}$ in. (See Foot Note)						5 $\frac{1}{2}$	10	2.00			
3 $\frac{1}{4}$	11	1.30							5 $\frac{3}{4}$	11	2.10			
3 $\frac{1}{2}$	12	1.35							6 $\frac{1}{2}$	12	2.20			
3 $\frac{3}{4}$	13	1.40							6 $\frac{3}{4}$	13	2.30			
4	14	1.45							7 $\frac{1}{2}$	14	2.40			
4 $\frac{1}{4}$	15	1.50							7 $\frac{3}{4}$	15	2.50			
4 $\frac{1}{2}$	16	1.50							8 $\frac{1}{2}$	16	2.60			
5	17	1.55							8 $\frac{3}{4}$	17	2.70			
5 $\frac{1}{4}$	18	1.55							9 $\frac{1}{2}$	18	2.80			
5 $\frac{1}{2}$	19	1.60							9 $\frac{3}{4}$	19	2.90			
5 $\frac{3}{4}$	20	1.65	3 $\frac{1}{2}$	8	1.40	10 $\frac{1}{2}$	20	3.00						
6	21	1.70	4	9	1.45	11	21	3.10						
6 $\frac{1}{4}$	22	1.70	4 $\frac{1}{2}$	10	1.50	11 $\frac{1}{2}$	22	3.20						
7	24	1.75	5	11	1.60	12	23	3.30						
7 $\frac{1}{4}$	25	1.80	5 $\frac{1}{2}$	12	1.70	12 $\frac{1}{2}$	24	3.40						
7 $\frac{3}{8}$	26	1.80	5 $\frac{3}{4}$	13	1.75	13	25	3.50						
7 $\frac{1}{2}$	27	1.80	6 $\frac{1}{2}$	14	1.80	13 $\frac{1}{2}$	26	3.60						
8	28	1.85	6 $\frac{3}{4}$	15	1.90	14	27	3.70						
8 $\frac{1}{8}$	29	1.88	7 $\frac{1}{2}$	16	2.00	14 $\frac{1}{2}$	28	3.80						
8 $\frac{1}{2}$	30	1.90	8	18	2.10	15	29	3.90						
9 $\frac{1}{2}$	32	1.95	8 $\frac{1}{2}$	19	2.20	15 $\frac{1}{2}$	30	4.00						
9 $\frac{3}{4}$	34	2.05	9	20	2.30	16	31	4.10						
10	35	2.10	9 $\frac{1}{2}$	21	2.35	16 $\frac{1}{2}$	32	4.20						
10 $\frac{1}{4}$	36	2.15	9 $\frac{3}{4}$	22	2.40	18	35	4.60						
11	38	2.20	10 $\frac{1}{2}$	23	2.45	18 $\frac{1}{2}$	36	4.70						
12	42	2.40	12	27	2.70	20 $\frac{1}{2}$	39	5.10						
12 $\frac{1}{2}$	44	2.55	12 $\frac{1}{2}$	28	2.80	20 $\frac{3}{4}$	40	5.20						
13 $\frac{1}{2}$	48	2.60	13 $\frac{1}{2}$	30	2.90	21 $\frac{1}{2}$	42	5.40						
15	52	2.80	14 $\frac{1}{2}$	32	3.00	22 $\frac{1}{2}$	44	5.80						
16	56	3.00	15 $\frac{1}{2}$	34	3.20	23 $\frac{1}{2}$	45	6.00						
17 $\frac{1}{2}$	60	3.25	16	36	3.30	24 $\frac{1}{2}$	48	6.50						
18 $\frac{1}{2}$	64	3.50	16 $\frac{1}{2}$	38	3.40	26 $\frac{1}{2}$	50	6.80						
24	84	5.00	18 $\frac{1}{2}$	41	3.65	28	54	7.50						
No. 32 Bore 1 $\frac{1}{8}$ in. (See Foot Note)			18 $\frac{3}{4}$	42	3.70	30	58	8.30						
			24	54	4.90	36	69	11.00						
			28 $\frac{1}{2}$	63	5.85	40 $\frac{1}{2}$	78	13.70						
			No. 42 Bore 1 $\frac{1}{8}$ in. (See Foot Note)			43	82	15.00						
						No. 51 Bore 1 $\frac{1}{8}$ in. (See Foot Note)								
												2 $\frac{1}{2}$	5	1.40
												3	6	1.50
												3 $\frac{1}{2}$	7	1.55
												3 $\frac{3}{4}$	8	1.60
												4	9	1.65
												4 $\frac{1}{2}$	10	1.70
												4 $\frac{3}{4}$	11	1.75
												5	12	1.80
			5 $\frac{1}{2}$	13	1.85									
			5 $\frac{3}{4}$	14	1.85									
			6	15	1.90									
			6 $\frac{1}{2}$	16	1.95									
			6 $\frac{3}{4}$	17	2.00									
			7	18	2.05									
			7 $\frac{1}{2}$	19	2.10									
			7 $\frac{3}{4}$	20	2.15									
			8	21	2.20									
			8 $\frac{1}{2}$	22	2.25									
			8 $\frac{3}{4}$	23	2.30									
			9	24	2.35									
			9 $\frac{1}{2}$	25	2.40									
			9 $\frac{3}{4}$	26	2.45									
			10	27	2.50									
			10 $\frac{1}{4}$	28	2.55									
			11	30	2.55									
			11 $\frac{1}{2}$	32	2.70									
			12	33	2.80									
			12 $\frac{1}{2}$	35	2.90									
			13 $\frac{1}{2}$	36	2.90									
			14	38	3.00									
			2 $\frac{1}{2}$	6	1.60	13	5	1.40						
			3 $\frac{1}{2}$	7	1.70	2 $\frac{1}{2}$	7	1.50						
			3 $\frac{3}{4}$	8	1.80	3	8	1.55						
			4 $\frac{1}{2}$	9	1.90	3 $\frac{1}{2}$	9	1.60						
			4 $\frac{3}{4}$	10	1.93	3 $\frac{3}{4}$	10	1.65						
			4 $\frac{1}{2}$	11	1.95	4	11	1.70						
			5 $\frac{1}{2}$	12	2.00	4 $\frac{1}{2}$	12	1.75						
			5 $\frac{3}{4}$	13	2.05	4 $\frac{3}{4}$	13	1.80						
			6	14	2.10	5	14	1.85						
			6 $\frac{1}{2}$	15	2.15	5 $\frac{1}{2}$	15	1.90						
			7	16	2.20	6	16	1.95						
			7 $\frac{1}{2}$	17	2.25	6 $\frac{1}{2}$	17	2.00						
			8	18	2.30	6 $\frac{3}{4}$	18	2.05						
			8 $\frac{1}{2}$	19	2.35	7	19	2.10						
9 $\frac{1}{2}$	22	2.50	7 $\frac{1}{2}$	20	2.15									
10 $\frac{1}{2}$	24	2.60	7 $\frac{3}{4}$	21	2.20									
11 $\frac{1}{2}$	27	2.80	8	22	2.25									
12 $\frac{1}{2}$	28	2.90	8 $\frac{1}{2}$	23	2.30									
14	32	3.20	9	24	2.35									
15 $\frac{1}{2}$	36	3.60	9 $\frac{1}{2}$	25	2.40									
17	39	3.90	9 $\frac{3}{4}$	26	2.45									
18	41	4.00	10	27	2.50									
20	46	4.50	10 $\frac{1}{2}$	28	2.55									
24	55	5.50	10 $\frac{3}{4}$	29	2.60									
No. 51 Bore 1 $\frac{1}{8}$ in. (See Foot Note)						11	30	2.70						

In ordering, be sure to give the diameter and the number of teeth and size of bore, and if they are to be set screwed or key seated.

NOTE—An extra charge is made for wheels having special hubs, or wheels bored larger than specified above. See page 228.

Sprocket Wheels

No. 51 (Continued) Bore $1\frac{1}{8}$ in. (See Foot Note)			Nos. 57, 67 and 77 (Continued)			No. 66 Bore $2\frac{7}{8}$ in. (See Foot Note)		
Pitch Diameter, Inches	No. of Teeth	Price	Pitch Diameter, Inches	No. of Teeth	Price	Pitch Diameter, Inches	No. of Teeth	Price
$11\frac{1}{2}$	32	2.85	$16\frac{1}{2}$	22	4.80	5	8	1.90
$12\frac{1}{2}$	33	2.90	17	23	5.00	$5\frac{1}{2}$	9	2.00
$12\frac{3}{4}$	34	2.95	$17\frac{1}{2}$	24	5.20	7	11	2.20
$13\frac{1}{2}$	36	3.05	$18\frac{1}{2}$	25	5.40	$7\frac{1}{2}$	12	2.30
14	39	3.20	19	26	5.60	$8\frac{1}{2}$	13	2.50
$16\frac{1}{2}$	45	3.70	$19\frac{1}{2}$	27	5.85	$10\frac{1}{2}$	16	2.80
$18\frac{1}{2}$	50	4.10	$20\frac{1}{2}$	28	6.10	$11\frac{1}{2}$	18	3.00
$20\frac{1}{2}$	55	4.60	21	29	6.25	12	19	3.20
No. 52 Bore $1\frac{1}{8}$ in. (See Foot Note)			22	30	6.50	$16\frac{1}{2}$	25	4.00
$2\frac{3}{4}$	6	1.50	$23\frac{1}{2}$	32	7.00	Nos. 75, 78 and 88 Bore $2\frac{1}{8}$ in. (See Foot Note)		
$3\frac{1}{4}$	7	1.60	$24\frac{1}{2}$	33	7.25	$4\frac{1}{2}$	5	2.40
$3\frac{3}{4}$	8	1.70	25	34	7.50	5	6	2.60
$4\frac{1}{4}$	9	1.80	$26\frac{1}{2}$	36	8.00	$5\frac{1}{2}$	7	2.80
$4\frac{3}{4}$	10	1.90	28	38	8.60	$6\frac{1}{2}$	8	3.00
$5\frac{1}{2}$	11	2.00	$29\frac{1}{2}$	40	9.20	$7\frac{1}{2}$	9	3.20
$5\frac{3}{4}$	12	2.10	30	41	9.50	$8\frac{1}{2}$	10	3.45
$6\frac{1}{2}$	13	2.20	31	42	9.80	$9\frac{1}{2}$	11	3.70
$6\frac{3}{4}$	14	2.30	$31\frac{1}{2}$	43	10.10	10	12	3.95
$7\frac{1}{2}$	15	2.40	$32\frac{1}{2}$	44	10.40	$10\frac{1}{2}$	13	4.20
$7\frac{3}{4}$	16	2.50	$35\frac{1}{2}$	45	11.80	$11\frac{1}{2}$	14	4.50
$8\frac{1}{2}$	17	2.60	36	49	12.20	$12\frac{1}{2}$	15	4.80
$8\frac{3}{4}$	18	2.70	$38\frac{1}{2}$	52	13.20	$13\frac{1}{2}$	16	5.20
9	19	2.75	$39\frac{1}{2}$	54	13.90	$14\frac{1}{2}$	17	5.60
$9\frac{1}{4}$	20	2.80	40	56	14.60	15	18	5.80
10	21	2.90	$41\frac{1}{2}$	60	16.50	$15\frac{1}{2}$	19	6.20
$10\frac{1}{4}$	22	3.00	47	64	18.50	$16\frac{1}{2}$	20	6.60
$11\frac{1}{4}$	24	3.15	$54\frac{1}{2}$	74	21.10	$17\frac{1}{2}$	21	6.90
12	25	3.20	No. 62 Bore $2\frac{7}{8}$ in. (See Foot Note)			$18\frac{1}{2}$	22	7.30
$12\frac{1}{2}$	26	3.30	$3\frac{1}{2}$	6	1.75	$19\frac{1}{2}$	23	7.65
13	27	3.40	$3\frac{3}{4}$	7	1.85	20	24	8.00
$13\frac{1}{2}$	28	3.45	$4\frac{1}{2}$	8	1.95	$20\frac{1}{2}$	25	8.30
$14\frac{1}{2}$	30	3.60	$4\frac{3}{4}$	9	2.05	$21\frac{1}{2}$	26	8.60
$15\frac{1}{2}$	32	3.80	$5\frac{1}{2}$	10	2.15	$22\frac{1}{2}$	27	8.90
$16\frac{1}{2}$	34	4.00	$5\frac{3}{4}$	11	2.25	$23\frac{1}{2}$	28	9.20
$17\frac{1}{2}$	36	4.15	$6\frac{1}{2}$	12	2.40	$24\frac{1}{2}$	29	9.50
$17\frac{3}{4}$	37	4.20	$6\frac{3}{4}$	13	2.55	25	30	9.80
18	38	4.30	$7\frac{1}{2}$	14	2.70	$25\frac{1}{2}$	31	9.90
$18\frac{1}{2}$	39	4.45	8	15	2.85	$26\frac{1}{2}$	32	10.10
$19\frac{1}{2}$	40	4.60	$8\frac{1}{2}$	16	3.00	$27\frac{1}{2}$	33	10.70
$20\frac{1}{2}$	42	4.80	9	17	3.10	$28\frac{1}{2}$	34	11.10
22	46	5.20	$9\frac{1}{4}$	18	3.20	$29\frac{1}{2}$	35	11.50
$22\frac{1}{2}$	49	5.60	10	19	3.35	30	36	11.90
$24\frac{1}{2}$	51	5.80	$10\frac{1}{4}$	20	3.50	$31\frac{1}{2}$	37	12.40
$26\frac{1}{2}$	55	6.40	11	21	3.60	$32\frac{1}{2}$	38	12.90
28	58	6.75	$11\frac{1}{4}$	22	3.80	$33\frac{1}{2}$	39	13.40
31	64	8.00	$12\frac{1}{4}$	23	4.00	35	40	13.90
Nos. 57, 67 and 77 Bore $2\frac{7}{8}$ in. (See Foot Note)			$12\frac{3}{4}$	24	4.15	36	42	14.90
$3\frac{1}{2}$	5	1.80	$13\frac{1}{4}$	26	4.45	$36\frac{1}{2}$	43	15.40
$4\frac{1}{2}$	6	1.90	$13\frac{3}{4}$	28	4.70	$37\frac{1}{2}$	44	15.90
$5\frac{1}{2}$	7	2.20	$15\frac{1}{4}$	30	5.10	$38\frac{1}{2}$	46	17.10
6	8	2.40	$15\frac{3}{4}$	32	5.35	41	49	19.00
$6\frac{1}{2}$	9	2.60	16	34	5.60	$41\frac{1}{2}$	50	19.70
$7\frac{1}{2}$	10	2.80	19	36	5.90	$43\frac{1}{2}$	52	20.50
$8\frac{1}{2}$	11	2.90	$20\frac{1}{2}$	38	6.20	$48\frac{1}{2}$	58	24.80
9	12	3.10	$22\frac{1}{2}$	43	7.00	50	60	26.00
$9\frac{1}{4}$	13	3.25	$23\frac{1}{2}$	45	7.40	$54\frac{1}{2}$	65	28.00
$10\frac{1}{4}$	14	3.40	$25\frac{1}{2}$	48	8.10	64	77	32.80
11	15	3.55	$27\frac{1}{2}$	49	8.30			
$11\frac{1}{2}$	16	3.70	$30\frac{1}{2}$	52	8.90			
$12\frac{1}{2}$	17	3.85	$35\frac{1}{2}$	68	12.20			
$13\frac{1}{2}$	18	4.00						
14	19	4.20						
$14\frac{1}{2}$	20	4.40						
$15\frac{1}{2}$	21	4.60						

In ordering, be sure to give the diameter and the number of teeth and size of bore, and if they are to be set screwed or key seated.

NOTE—An extra charge is made for wheels having special hubs, or wheels bored larger than specified above. See page 228.

Sprocket Wheels

Nos. 85 and 95 Bore $2\frac{1}{8}$ in. (See Foot Note)			No. 105 Bore $3\frac{1}{8}$ in. (See Foot Note)			No. 122 Bore $3\frac{1}{8}$ in. (See Foot Note)		
Pitch Diameter, Inches	No. of Teeth	Price	Pitch Diameter, Inches	No. of Teeth	Price	Pitch Diameter, Inches	No. of Teeth	Price
7 $\frac{1}{2}$	6	4.00	11 $\frac{1}{2}$	6	6.00	12	6	7.65
9	7	4.50	15 $\frac{1}{2}$	8	7.25	16	8	9.75
10 $\frac{1}{2}$	8	5.00	19 $\frac{1}{2}$	10	10.60	18	9	10.80
12 $\frac{1}{2}$	10	6.05	23	12	11.50	20	10	12.80
14	11	6.50	25 $\frac{1}{2}$	13	13.00	22	11	14.60
15 $\frac{1}{2}$	12	6.95	27 $\frac{1}{2}$	14	15.00	23 $\frac{1}{2}$	12	16.50
16 $\frac{1}{2}$	13	7.40	31	16	18.20	25 $\frac{1}{2}$	13	18.25
17 $\frac{1}{2}$	14	7.85	36 $\frac{1}{2}$	19	24.00	29 $\frac{1}{2}$	15	21.80
19	15	8.35	48 $\frac{1}{2}$	25	36.00	31 $\frac{1}{2}$	16	23.60
20 $\frac{1}{2}$	16	8.80				37	19	30.00
23	18	10.25				41	21	34.00
24	19	11.00				43	22	36.00
28	22	13.60						
30 $\frac{1}{2}$	24	15.40						
33	26	17.15						
34	27	18.25						
35 $\frac{1}{2}$	28	20.40						
40 $\frac{1}{2}$	32	24.40						
60	47	45.00						

No. 103 Bore $3\frac{1}{8}$ in. (See Foot Note)			No. 108 Bore $3\frac{1}{8}$ in. (See Foot Note)			No. 124 Bore $3\frac{1}{8}$ in. (See Foot Note)		
Pitch Diameter, Inches	No. of Teeth	Price	Pitch Diameter, Inches	No. of Teeth	Price	Pitch Diameter, Inches	No. of Teeth	Price
5	5	3.20	9 $\frac{1}{2}$	6	5.20	7 $\frac{1}{2}$	6	5.50
6	6	3.60	10 $\frac{1}{2}$	7	5.70	10 $\frac{1}{2}$	8	6.20
7	7	4.00	12 $\frac{1}{2}$	8	6.20	11 $\frac{1}{2}$	9	6.90
8	8	4.40	13 $\frac{1}{2}$	9	7.25	13	10	7.70
9	9	4.80	15 $\frac{1}{2}$	10	8.10	14 $\frac{1}{2}$	11	8.50
9 $\frac{1}{2}$	10	5.25	16 $\frac{1}{2}$	11	9.00	15 $\frac{1}{2}$	12	9.40
10 $\frac{1}{2}$	11	5.65	18 $\frac{1}{2}$	12	9.90	17	13	10.20
11 $\frac{1}{2}$	12	6.05	19 $\frac{1}{2}$	13	10.90	18 $\frac{1}{2}$	14	11.00
12 $\frac{1}{2}$	13	6.45	21 $\frac{1}{2}$	14	11.80	19 $\frac{1}{2}$	15	12.00
13 $\frac{1}{2}$	14	6.85	24 $\frac{1}{2}$	16	14.00	20 $\frac{1}{2}$	16	13.00
14 $\frac{1}{2}$	15	7.25	30 $\frac{1}{2}$	20	18.50	22	17	14.20
15 $\frac{1}{2}$	16	7.65	36	24	24.00	23	18	15.20
16 $\frac{1}{2}$	17	8.05	48	32	37.00	24 $\frac{1}{2}$	19	16.20
17 $\frac{1}{2}$	18	8.45				26	20	17.30
18 $\frac{1}{2}$	19	8.90				28 $\frac{1}{2}$	22	19.50
19 $\frac{1}{2}$	20	9.40				29 $\frac{1}{2}$	23	20.60
21 $\frac{1}{2}$	22	10.85				31	24	21.70
22 $\frac{1}{2}$	23	10.80				32 $\frac{1}{2}$	25	22.80
23 $\frac{1}{2}$	24	11.20				36 $\frac{1}{2}$	28	26.10
24 $\frac{1}{2}$	25	11.75				41 $\frac{1}{2}$	32	30.80
25 $\frac{1}{2}$	26	12.25				44	34	33.00
26 $\frac{1}{2}$	27	12.75				49 $\frac{1}{2}$	38	38.00
27 $\frac{1}{2}$	28	13.30				59 $\frac{1}{2}$	46	48.80
28 $\frac{1}{2}$	29	13.85				62	48	52.00
29 $\frac{1}{2}$	30	14.40						
30 $\frac{1}{2}$	31	15.20						
31 $\frac{1}{2}$	32	16.00						
32 $\frac{1}{2}$	33	16.80						
33 $\frac{1}{2}$	34	17.60						
34 $\frac{1}{2}$	35	18.40						
35 $\frac{1}{2}$	36	19.25						
36 $\frac{1}{2}$	37	20.25						
37 $\frac{1}{2}$	38	21.20						
39 $\frac{1}{2}$	40	23.10						
40	41	23.95						
41	42	24.80						
45	46	28.20						
47	48	29.20						
48	49	30.75						
53 $\frac{1}{2}$	55	35.85						
59 $\frac{1}{2}$	61	40.95						
64 $\frac{1}{2}$	66	45.50						
66 $\frac{1}{2}$	68	60.00						
79	81	71.05						

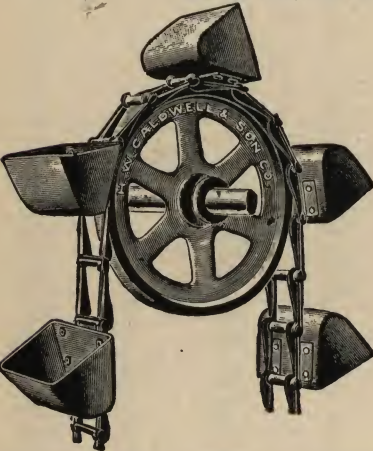
No. 114 Bore $3\frac{1}{8}$ in. (See Foot Note)			No. 146 Bore $3\frac{1}{8}$ in. (See Foot Note)		
Pitch Diameter, Inches	No. of Teeth	Price	Pitch Diameter, Inches	No. of Teeth	Price
7 $\frac{1}{2}$	7	4.15	16	8	12.00
8 $\frac{1}{2}$	8	4.50	18	9	12.65
9 $\frac{1}{2}$	9	4.85	20	10	13.70
10 $\frac{1}{2}$	10	5.20	24	12	15.70
11 $\frac{1}{2}$	11	5.65	30	15	18.50
12 $\frac{1}{2}$	12	6.10	36	18	24.00
13 $\frac{1}{2}$	13	6.55	71 $\frac{1}{2}$	36	45.00
14 $\frac{1}{2}$	14	7.00			
15 $\frac{1}{2}$	15	7.50			
16 $\frac{1}{2}$	16	8.00			
17 $\frac{1}{2}$	17	8.60			
18 $\frac{1}{2}$	18	9.20			
20	19	9.80			
22	21	11.10			
24	23	12.45			
25	24	13.10			
31 $\frac{1}{2}$	30	17.50			
33	32	19.30			
35	34	21.10			
36	35	22.00			
37 $\frac{1}{2}$	36	23.00			
38 $\frac{1}{2}$	37	24.00			
39 $\frac{1}{2}$	38	25.00			
43 $\frac{1}{2}$	42	29.10			
48 $\frac{1}{2}$	47	34.90			
59	57	44.75			

In ordering, be sure to give the diameter and the number of teeth and size of bore, and if they are to be set screwed or key seated.

NOTE—An extra charge is made for wheels having special hubs, or wheels bored larger than specified above. See page 223.

Additional Price to be Added to the List Price For
Split Sprocket Wheels

Number of Chain	Number of Teeth															
	4-7	8-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80
25	-----	1.15	1.15	1.20	1.20	1.25	1.25	1.30	1.35	1.40	1.45	1.50	1.55	1.60	1.70	1.75
32	-----	1.20	1.25	1.30	1.40	1.45	1.50	1.55	1.65	1.70	1.80	1.90	2.00	2.05	2.15	2.25
33-34-42	-----	1.30	1.35	1.40	1.50	1.55	1.65	1.75	1.85	1.95	2.05	2.20	2.35	2.50	2.65	2.80
35-45-55	-----	1.40	1.50	1.60	1.75	1.90	2.00	2.15	2.35	2.60	2.85	3.10	3.35	3.60	3.85	4.15
51	-----	1.20	1.25	1.30	1.40	1.45	1.50	1.55	1.65	1.75	1.90	2.00	2.10	2.25	2.40	2.50
52	-----	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.25	2.45	2.60	2.80	3.00	3.20	3.45
62	-----	1.50	1.60	1.75	1.90	2.10	2.25	2.45	2.65	2.95	3.25	3.55	3.85	4.15	4.45	4.75
66	-----	1.45	1.55	1.65	1.80	1.95	2.10	2.30	2.50	2.75	3.05	3.35	3.60	3.90	4.20	4.50
57-67-77	-----	1.55	1.70	1.95	2.20	2.45	2.75	3.10	3.50	3.90	4.30	4.75	5.15	5.60	6.00	6.45
75-78-88	-----	1.70	2.00	2.45	2.90	3.40	3.90	4.40	4.95	5.50	6.05	6.60	7.15	7.70	8.25	8.80
85-95	2.05	2.35	3.05	3.90	4.80	5.70	6.60	7.50	8.40	9.35	-----	-----	-----	-----	-----	-----
103-105	1.90	2.20	2.70	3.30	4.00	4.75	5.50	6.10	6.75	7.45	8.10	8.75	9.40	10.05	10.70	11.40
108	2.20	3.00	3.85	5.10	6.40	7.70	9.00	10.35	-----	-----	-----	-----	-----	-----	-----	-----
114	1.65	2.05	2.70	3.50	4.30	5.15	6.05	6.95	7.90	8.85	9.80	10.75	-----	-----	-----	-----
122	3.50	4.50	5.70	7.25	8.80	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
124	2.10	2.70	4.00	4.20	4.90	6.60	7.40	8.40	9.45	10.45	11.50	12.55	13.60	14.70	-----	-----
146	3.50	4.20	5.00	6.00	6.80	7.60	8.40	9.20	-----	-----	-----	-----	-----	-----	-----	-----

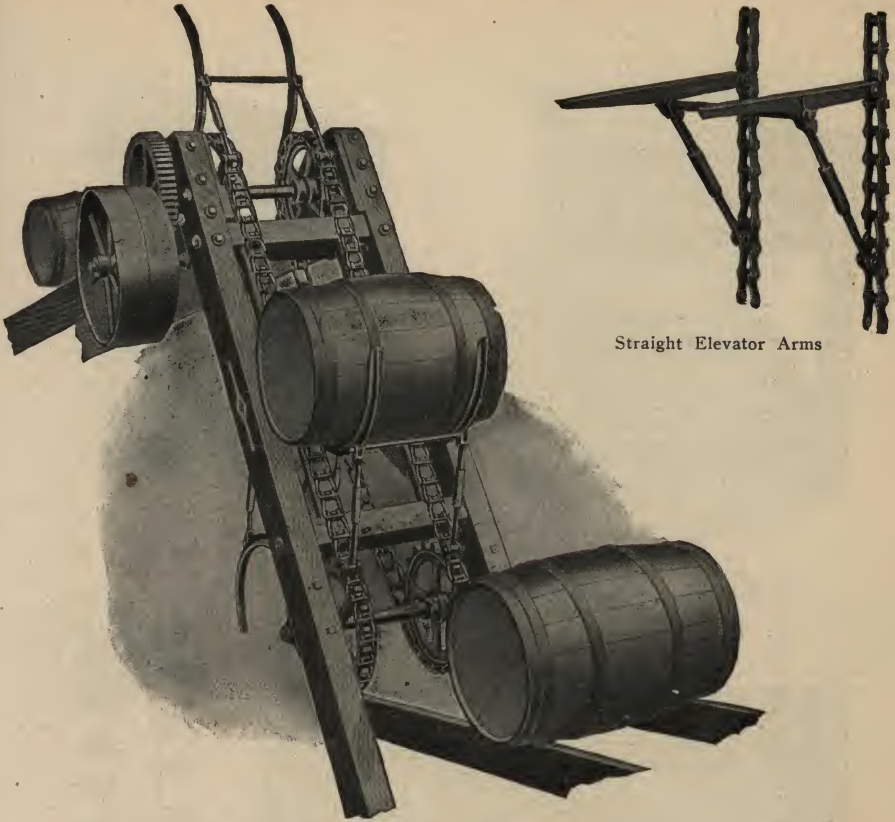


Traction Wheels

Traction wheels are very satisfactory for use in elevators handling heavy or gritty material, the grip being ample to do all the work that the Link-Belting and Buckets should be called upon to do; and at the same time, in the event of a serious obstruction, the chain may slip. Elevators provided with these wheels will run smoother and last longer in gritty material than they would if sprocket wheels were used.

No. 85 Bore 2½ in. (See Foot Note)		No. 103 Bore 3¼ in. (See Foot Note)		Nos. 108 and 110 (Con.) Bore 3¼ in. (See Foot Note)		No. 122 (Con.) Bore 3½ in. (See Foot Note)	
Pitch Diameter, Inches	Price	Pitch Diameter, Inches	Price	Pitch Diameter, Inches	Price	Pitch Diameter, Inches	Price
12	7.55	18½	10.85	36	28.20	24	18.15
13	8.10	20	12.50	36½	28.75	25½	19.00
14	8.65	30	21.80	No. 114 Bore 3¼ in. (See Foot Note)		26	19.55
15	9.10	Nos. 108 and 110 Bore 3¼ in. (See Foot Note)				29½	22.55
15½	9.65					30	23.10
16½	10.20					31	23.95
17½	10.60	No. 122 Bore 3½ in. (See Foot Note)		16½	10.85	36½	27.65
17½	10.90			18	12.50	37	28.05
18	11.00			24	18.10	42	33.40
19	11.55			No. 124 Bore 3½ in. (See Foot Note)			
20	12.10						
20½	12.50	16½	11.85				
24	14.60	17	12.10				
25	15.25	17½	12.25				
28	18.70	18	12.65	12	11.55		
30	20.90	18½	13.05	16	13.60		
30½	22.00	20	14.05	17½	14.15		
35½	26.95	22	15.70	18	14.60	16½	12.50
36	27.50	22½	16.25	19½	15.25	18½	14.75
		24	17.20	20	15.80	20	16.00
		24½	17.75	21½	16.80	21½	17.50
		28	21.05	22	17.05	24	19.75
		30	23.25	23½	17.90	31	26.00

NOTE—An extra charge is made for wheels having special hubs, or wheels bored larger than specified above. See page 228.



Straight Elevator Arms

Curved Arm Elevator

FOR BARRELS, SACKS, KEGS, ETC.

FOR USE IN FLOUR MILLS, BREWERIES, ETC.

These arms are made of our very best refined malleable iron, and are used in connection with chain belt and sprocket wheels, as per cut at top of page, or may be used with a perpendicular elevator.

Straight Arms For Box or Block Elevator

Each Set Complete as Follows:

2 Straight Arms, or 2 Straight Arms with curved tips.	}	7.50 per set
2 Cushioned spring braces.		
1 Cross rod with 2 nuts.		
1 Piece spacing pipe.		
4 Links M3 No. 78 or No. 83 with pins and cotters.		

Curved Elevator Arms For Kegs, Small Barrels, Sacks, Etc.

Each Set Complete as Follows:

2 Curved Arms, 18 inches diameter.	}	7.50 per set
2 Cushioned spring braces.		
1 Cross rod with 2 nuts.		
1 Piece spacing pipe.		
4 Links M3 No. 78 or No. 83 with pins and cotters.		

Curved Elevator Arms For Heavy Barrels, Tierces, Etc.

Each Set Complete as Follows:

2 Curved Arms, 26 inches diameter.	}	8.00 per set
2 Cushioned spring braces.		
1 Cross rod with 2 nuts.		
1 Piece spacing pipe.		
4 Links M3 No. 103, 320 or No. 325 with pins and cotters.		



Cross Section of Double Strand
Wood Flight Conveyor



Single Strand Conveyor using
F Attachment



Telescopic Ash Elevator. We also furnish Other Styles

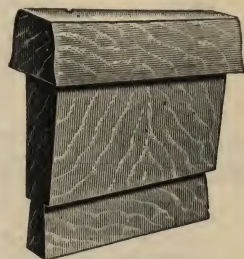


Single Strand
Elevator

The above cuts show but a few of the Link Belt Appliances we can furnish. Write us freely for any information you may desire regarding elevating and conveying machinery.



Sawed to Shape



Head Dressed

Seasoned Maple Cogs

Width of face.....	3"	4"	5"	6"	7"	8"	9"	10"	11"	12"
Sawed to shape.....	.18	.18	.23	.27	.31	.38	.45	.52	.60	.70
Heads dressed.....	.13	.18	.23	.27	.31	.38	.45	.52	.60	.70
Keys, each.....	.03	.03	.03½	.04	.04½	.05	.06	.07	.08	.09

Unless otherwise instructed, we send cogs sawed to shape without heads dressed.

Filling Mortise Gears With Hard Maple Cogs

INCLUDING SPACING AND DRESSING IN PATENT MACHINE

Width of face.....	3"	4"	5"	6"	7"	8"	9"	10"	12"
Price per cog.....	.30	.40	.50	.60	.70	.80	.90	1.00	1.20

Time and money can be saved by sending gears to us to be refilled and dressed.

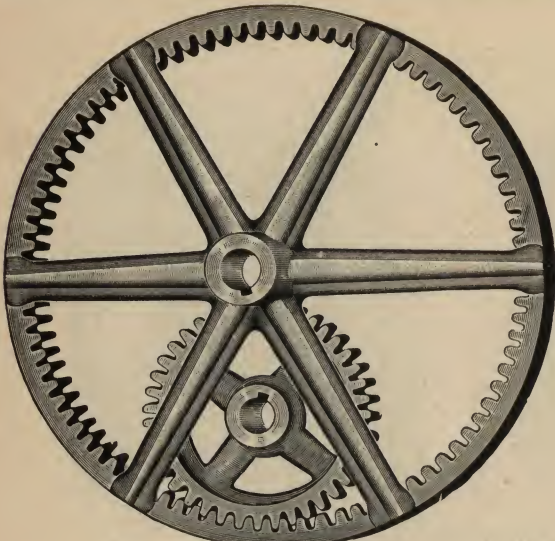
Dressing Iron Cogs of Pinions For Mortise Gears

Width of face.....	4"	5"	6"	7"	8"	9"	10"	11"	12"	14"
Price per cog, one side.....	.25	.30	.35	.40	.45	.50	.60	.65	.70	.80
Price per cog, two sides.....	.37	.45	.52	.60	.67	.75	.90	.97	1.05	1.20

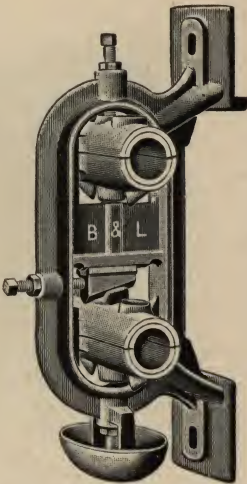
Patent Gear Cutter

We use the Gleason Gear Cutter for dressing the wood cogs of mortise wheels and the iron cogs of pinions.

We guarantee all work furnished by us to be perfect.



Internal Gears



Double Swivel Post Box

Internal Spur Gears

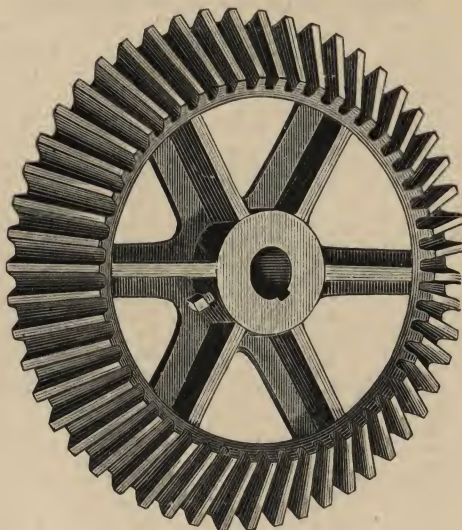
Pattern No.	Price	No. Teeth	Pitch	Face	Pitch Diam.	Pattern No.	Price	No. Teeth	Pitch	Face	Pitch Diam.
1	11.00	60	1"	2 $\frac{1}{2}$	19.20	4	34.00	83	1 $\frac{1}{2}$ "	3 $\frac{1}{2}$	36.52
Pinion	2.60	20	1"	2 $\frac{1}{2}$	6.40	Pinion	4.20	14	1 $\frac{1}{2}$ "	3 $\frac{1}{2}$	6.16
Pinion	5.00	30	1"	2 $\frac{1}{2}$	9.60	Pinion	6.50	21	1 $\frac{1}{2}$ "	3 $\frac{1}{2}$	9.24
2	19.00	78	1 $\frac{1}{2}$ "	2 $\frac{1}{2}$	28.08	Pinion	7.00	23	1 $\frac{1}{2}$ "	3 $\frac{1}{2}$	10.12
Pinion	5.10	17	1 $\frac{1}{2}$ "	2 $\frac{1}{2}$	6.12	Pinion	7.30	24	1 $\frac{1}{2}$ "	3 $\frac{1}{2}$	10.56
Pinion	4.00	23	1 $\frac{1}{2}$ "	2 $\frac{1}{2}$	8.28	Pinion	12.00	36	1 $\frac{1}{2}$ "	3 $\frac{1}{2}$	15.84
Pinion	5.60	33	1 $\frac{1}{2}$ "	2 $\frac{1}{2}$	11.88	5	71.40	86	1 $\frac{1}{2}$ "	4 $\frac{1}{2}$	48.16
3	21.00	83	1 $\frac{1}{2}$ "	2 $\frac{1}{2}$	33.20	Pinion	11.40	21	1 $\frac{1}{2}$ "	4 $\frac{1}{2}$	11.76
Pinion	4.60	17	1 $\frac{1}{2}$ "	2 $\frac{1}{2}$	6.75	Pinion	12.50	23	1 $\frac{1}{2}$ "	4 $\frac{1}{2}$	12.88
Pinion	6.00	25	1 $\frac{1}{2}$ "	2 $\frac{1}{2}$	10.00						
Pinion	10.90	36	1 $\frac{1}{2}$ "	2 $\frac{1}{2}$	14.40						

NOTE—A choice of two or more pinions is given for use with all the Internal Spur Gears listed above.

Double Swivel Post Boxes
FOR INTERNAL SPUR GEARS

No. Teeth In Gears	Diameter of Gears	Proportion 1 to	Center to Center of Bearings	Largest Bearings	
				Upper	Lower
60	19.2	3.00	6.4	2 $\frac{7}{8}$	2 $\frac{1}{8}$
20	6.4				
60	19.2	2.00	4.8	2 $\frac{7}{8}$	2 $\frac{1}{8}$
30	9.6				
78	20.08	4.59	10.98	2 $\frac{1}{2}$	2 $\frac{7}{8}$
17	6.12				
78	20.08	3.39	9.9	2 $\frac{1}{2}$	2 $\frac{7}{8}$
23	8.28				
78	20.08	3.36	8.1	2 $\frac{1}{2}$	2 $\frac{7}{8}$
33	11.88				
83	33.20	4.68	13.2	2 $\frac{1}{2}$	2 $\frac{7}{8}$
17	6.75				
83	33.20	3.32	11.6	2 $\frac{1}{2}$	2 $\frac{7}{8}$
25	10.00				
83	33.20	2.30	9.4	2 $\frac{1}{2}$	2 $\frac{7}{8}$
36	14.40				
83	36.52	5.93	15.18	3 $\frac{7}{8}$	3 $\frac{7}{8}$
14	6.16				
83	36.52	3.95	13.64	3 $\frac{7}{8}$	3 $\frac{7}{8}$
21	9.24				
83	36.52	3.61	13.2	3 $\frac{7}{8}$	3 $\frac{7}{8}$
23	10.12				
83	36.52	3.46	12.98	3 $\frac{7}{8}$	3 $\frac{7}{8}$
24	10.56				
83	36.52	2.30	10.34	3 $\frac{7}{8}$	3 $\frac{7}{8}$
36	15.84				

For list prices of the above, add prices of two single adjustable ball and socket post hangers of required size. See page 186 for list prices.



Bevel Wheels

Bevel Wheels work together only as paired in the list. A Bevel Wheel belonging to any pair will not work with Pinion of another pair although they may be of the same Pitch.

Backing is the distance from Pitch Circle to back of Hub.

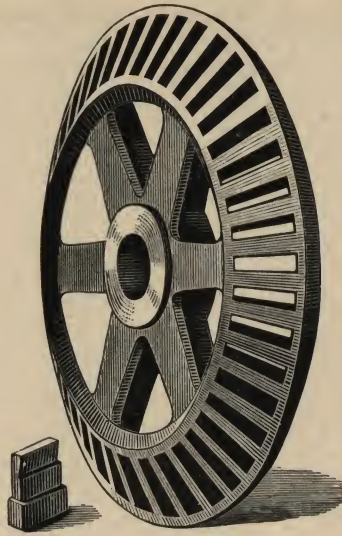
Number		Cogs	Pitch	Face	Diam. in Inches	Back	Depth of Hub	Ratio one to
27	Wheel	67	2 $\frac{1}{2}$	8	53.60	4 $\frac{1}{2}$	8 $\frac{1}{2}$	1.31
	Pinion	51	2 $\frac{1}{2}$	8	40.80	1 $\frac{1}{2}$	8 $\frac{1}{2}$	
2	Wheel	80	2 $\frac{1}{2}$	8	57.60	5 $\frac{1}{2}$	8 $\frac{1}{2}$	1.77
	Pinion	45	2 $\frac{1}{2}$	8	32.40	2 $\frac{1}{2}$	8 $\frac{1}{2}$	
3	Wheel	65	2 $\frac{1}{2}$	6 $\frac{3}{4}$	46.80	4 $\frac{1}{2}$	7 $\frac{1}{2}$	1.44
	Pinion	45	2 $\frac{1}{2}$	6 $\frac{3}{4}$	32.40	2 $\frac{3}{8}$	7 $\frac{1}{8}$	
1	Wheel	113	2	8	73.32	7 $\frac{1}{2}$	-----	4.03
	Pinion	28	2	8	17.92	$\frac{1}{2}$	-----	
74	Wheel	80	2	6	51.20	6 $\frac{1}{2}$	7	4.
	Pinion	20	2	6	12.80	$\frac{3}{8}$	6 $\frac{5}{8}$	
7	Wheel	60	2	6	38.40	4 $\frac{5}{8}$	6	2.
	Pinion	30	2	6	19.20	1 $\frac{1}{2}$	6 $\frac{1}{2}$	
76	Wheel	54	2	6	34.56	2 $\frac{1}{2}$	-----	1.50
	Pinion	36	2	6	23.04	1 $\frac{1}{2}$	-----	
84	Wheel	104	2	5 $\frac{1}{2}$	66.56	-----	-----	6.50
	Pinion	16	2	5 $\frac{1}{2}$	10.24	-----	-----	
35	Wheel	60	2	4	38.40	5 $\frac{1}{2}$	5 $\frac{1}{2}$	5.45
	Pinion	11	2	4	7.04	$\frac{1}{2}$	-----	
5	Wheel	75	1 $\frac{1}{2}$	5	42.	5	5 $\frac{1}{2}$	3.12
	Pinion	24	1 $\frac{1}{2}$	5	13.44	$\frac{1}{2}$	5 $\frac{1}{2}$	
80	Wheel	51	1 $\frac{1}{2}$	5	28.56	2 $\frac{1}{2}$	-----	1.50
	Pinion	34	1 $\frac{1}{2}$	5	19.04	-----	-----	
4	Wheel	60	1 $\frac{1}{2}$	4 $\frac{1}{2}$	33.60	4 $\frac{1}{2}$	5 $\frac{1}{2}$	1.81
	Pinion	33	1 $\frac{1}{2}$	4 $\frac{1}{2}$	18.48	1 $\frac{1}{2}$	5	
85	Wheel	40	1 $\frac{1}{2}$	3 $\frac{1}{2}$	22.40	-----	-----	1.90
	Pinion	21	1 $\frac{1}{2}$	3 $\frac{1}{2}$	11.76	-----	-----	
93	Wheel	61	1 $\frac{1}{2}$	4 $\frac{1}{2}$	29.28	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4.07
	Pinion	15	1 $\frac{1}{2}$	4 $\frac{1}{2}$	7.21	$\frac{1}{2}$	4 $\frac{1}{2}$	
96	Wheel	68	1 $\frac{1}{2}$	4	32.64	4 $\frac{1}{2}$	5 $\frac{1}{2}$	4.
	Pinion	17	1 $\frac{1}{2}$	4	8.16	$\frac{3}{8}$	4 $\frac{3}{8}$	
69	Wheel	51	1 $\frac{1}{2}$	4	24.48	2 $\frac{1}{2}$	4 $\frac{1}{2}$	1.50
	Pinion	34	1 $\frac{1}{2}$	4	16.32	$\frac{7}{8}$	4	
8	Wheel	48	1 $\frac{1}{2}$	4	23.04	2 $\frac{3}{8}$	3	2.
	Pinion	24	1 $\frac{1}{2}$	4	11.52	1	4 $\frac{1}{2}$	
18	Wheel	60	1 $\frac{1}{2}$	3 $\frac{1}{2}$	28.80	2 $\frac{1}{2}$	4 $\frac{1}{2}$	1.62
	Pinion	37	1 $\frac{1}{2}$	3 $\frac{1}{2}$	17.76	1 $\frac{1}{2}$	3 $\frac{1}{2}$	
17	Wheel	55	1 $\frac{1}{2}$	3 $\frac{1}{2}$	26.40	2 $\frac{1}{2}$	3 $\frac{1}{2}$	1.10
	Pinion	50	1 $\frac{1}{2}$	3 $\frac{1}{2}$	24.	1 $\frac{1}{2}$	3 $\frac{1}{2}$	

Bevel Wheels—Continued

Number		Oogs	Pitch	Face	Diam. in Inches	Back	Depth of Hub	Ratio one to
60	Wheel	64	1½	4	25.60	2½	4	2.66
	Pinion	24	1½	4	9.60	1½	4	
72	Wheel	50	1½	4	20.00	2½	4½	1.25
	Pinion	40	1½	4	16.00	1½	4½	
26	Wheel	78	1½	3½	31.20	3	3½	1.95
	Pinion	40	1½	3½	16.	1½	3½	
10	Wheel	60	1½	3½	24.00	3½	3½	2.50
	Pinion	24	1½	3½	9.60	1½	3½	
9	Wheel	60	1½	3½	24.00	3½	4	3.
	Pinion	20	1½	3½	8.00	1½	3½	
22	Wheel	75	1½	3	30.00	3½	3	5.
	Pinion	15	1½	3	6.	1½	3	
94	Wheel	78	1½	3	31.20	2½	3½	1.36
	Pinion	57	1½	3	22.80	1½	3½	
95	Wheel	35	1½	3	14.	1½	4½	1.34
	Pinion	26	1½	3	10.41	1½	3½	
20	Wheel	64	1½	3	25.60	3½	3	2.66
	Pinion	24	1½	3	9.60	1½	3	
38	Wheel	48	1½	3	19.20	2½	3	2.
	Pinion	24	1½	3	9.60	1½	3	
36	Wheel	67	1½	3	26.80	2½	3½	1.67
	Pinion	40	1½	3	16.00	1½	3½	
14	Wheel	45	1½	3	18.	2	3½	1.25
	Pinion	36	1½	3	14.40	1½	3½	
68	Wheel	60	1½	2½	24.	2	3	1.27
	Pinion	47	1½	2½	18.80	1½	3	
89	Wheel	31	1½	2½	12.	1½	3½	1.34
	Pinion	23	1½	2½	9.20	1½	4	
41	Wheel	45	1½	3	16.20	2	3	1.55
	Pinion	29	1½	3	10.44	1½	3	
39	Wheel	45	1½	3	16.20	2	3½	1.16
	Pinion	39	1½	3	14.04	1½	3½	
23	Wheel	75	1½	2½	27.00	3	3	3.75
	Pinion	20	1½	2½	7.20	1½	3	
21	Wheel	44	1½	2½	15.84	2½	2½	2.
	Pinion	22	1½	2½	7.92	1½	2½	
37	Wheel	58	1½	2½	20.88	1½	2½	1.16
	Pinion	50	1½	2½	18.00	1½	2½	
34	Wheel	36	1½	1½	12.96	1½	-----	4.
	Pinion	9	1½	1½	3.24	1½	-----	
49	Wheel	36	1½	1½	12.96	1½	1½	3.60
	Pinion	10	1½	1½	3.60	1½	1½	
62	Wheel	60	1	3	19.20	2½	3	3.16
	Pinion	19	1	3	6.08	1½	3	
90	Wheel	39	1	3	12.48	1	4½	1.34
	Pinion	29	1	3	9.28	-----	3½	
43	Wheel	59	1	2½	18.88	2½	3	4.54
	Pinion	13	1	2½	4.16	1½	3	
87	Wheel	87	1	2½	27.84	-----	3½	6.69
	Pinion	13	1	2½	4.16	-----	3	
15	Wheel	60	1	2½	19.20	2	3	3.16
	Pinion	19	1	2½	6.08	1½	2½	
6	Wheel	150	1	2½	48.	3	7½	2.
	Pinion	75	1	2½	24.	1½	7½	
40	Wheel	68	1	2½	20.16	2	2½	1.57
	Pinion	40	1	2½	12.80	1	2½	
50	Wheel	27	1	2½	8.64	1½	2½	1.50
	Pinion	18	1	2½	5.76	1½	2½	
24	Wheel	52	1	2½	16.64	2½	3	1.30
	Pinion	40	1	2½	12.80	1½	2½	
61	Wheel	46	1	2½	14.72	2	2½	1.64
	Pinion	28	1	2½	8.96	1½	2½	
77	Wheel	64	1	2½	20.48	2½	2½	4.
	Pinion	16	1	2½	5.12	1½	3½	
73	Wheel	30	1	2½	9.60	1½	2½	1.11
	Pinion	27	1	2½	8.64	1½	2½	
71	Wheel	38	1	2	12.16	2½	-----	2.92
	Pinion	13	1	2	4.16	1½	-----	
11	Wheel	44	1	2	14.08	2½	2½	2.00
	Pinion	22	1	2	7.04	1½	2½	
70	Wheel	38	1	2	12.16	1½	-----	1.52
	Pinion	25	1	2	8.00	1½	-----	

Bevel Wheels—Continued

Number		Cogs	Pitch	Face	Diam. in Inches	Back	Depth of Hub	Ratio one to
67	Wheel	48	1	2	15.36			1.50
	Pinion	32	1	2	10.24			
13	Wheel	50	1	2	16.	1 $\frac{1}{8}$	2 $\frac{1}{4}$	1.39
	Pinion	36	1	2	11.52	1	2 $\frac{1}{4}$	
68	Wheel	42	1	2	13.44	1 $\frac{1}{8}$	2 $\frac{3}{8}$	1.36
	Pinion	31	1	2	9.92	1 $\frac{1}{8}$	2 $\frac{3}{8}$	
12	Wheel	51	1	2	16.32	1 $\frac{1}{4}$	2 $\frac{1}{4}$	1.27
	Pinion	40	1	2	12.80	1 $\frac{1}{4}$	2 $\frac{1}{4}$	
91	Wheel	80	1 $\frac{1}{8}$	2 $\frac{3}{8}$	24.00	3 $\frac{1}{4}$	3	5.33
	Pinion	15	1 $\frac{1}{8}$	2 $\frac{3}{8}$	4.50	1 $\frac{1}{8}$	2 $\frac{3}{8}$	
45	Wheel	39	1 $\frac{1}{8}$	2 $\frac{3}{8}$	11.70	1 $\frac{1}{4}$	2 $\frac{3}{8}$	2.05
	Pinion	19	1 $\frac{1}{8}$	2 $\frac{3}{8}$	5.70	1 $\frac{1}{4}$	2 $\frac{3}{8}$	
42	Wheel	65	1 $\frac{1}{8}$	2	19.50	2 $\frac{3}{8}$	2	5.
	Pinion	13	1 $\frac{1}{8}$	2	3.90	2 $\frac{3}{8}$	2	
52	Wheel	28	1 $\frac{1}{8}$	1 $\frac{1}{4}$	8.40	2 $\frac{3}{8}$	1 $\frac{1}{8}$	2.80
	Pinion	10	1 $\frac{1}{8}$	1 $\frac{1}{4}$	3.	2 $\frac{3}{8}$	1 $\frac{1}{8}$	
75	Wheel	37	1 $\frac{1}{8}$	2	10.36	2 $\frac{3}{8}$		2.47
	Pinion	15	1 $\frac{1}{8}$	2	4.20	2 $\frac{3}{8}$		
44	Wheel	43	1 $\frac{1}{8}$	1 $\frac{1}{4}$	12.04	1 $\frac{1}{8}$	1 $\frac{1}{4}$	3.91
	Pinion	11	1 $\frac{1}{8}$	1 $\frac{1}{4}$	3.08	1 $\frac{1}{8}$	1 $\frac{1}{4}$	
83	Wheel	49	1 $\frac{1}{8}$	2 $\frac{1}{4}$	12.74			2.45
	Pinion	20	1 $\frac{1}{8}$	2 $\frac{1}{4}$	5.20			
33	Wheel	33	1 $\frac{1}{8}$	2	8.58	2 $\frac{3}{8}$	2	2.06
	Pinion	16	1 $\frac{1}{8}$	2	4.16	2 $\frac{3}{8}$	2	
46	Wheel	56	2 $\frac{3}{8}$	2 $\frac{3}{8}$	13.44	2 $\frac{3}{8}$	2 $\frac{3}{8}$	2.80
	Pinion	20	2 $\frac{3}{8}$	2 $\frac{3}{8}$	4.80	2 $\frac{3}{8}$	2 $\frac{3}{8}$	
28	Wheel	45	2 $\frac{3}{8}$	2 $\frac{1}{4}$	10.80	1 $\frac{1}{8}$	2 $\frac{1}{4}$	2.65
	Pinion	17	2 $\frac{3}{8}$	2 $\frac{1}{4}$	4.08	1 $\frac{1}{8}$	2 $\frac{1}{4}$	
78	Wheel	75	1 $\frac{1}{8}$	2	15.	1 $\frac{1}{8}$	2 $\frac{1}{4}$	4.41
	Pinion	17	1 $\frac{1}{8}$	2	4.08	1 $\frac{1}{8}$	2 $\frac{1}{4}$	
51	Wheel	42	1 $\frac{1}{8}$	2	10.08	1 $\frac{1}{8}$		2.62
	Pinion	16	1 $\frac{1}{8}$	2	3.84	1 $\frac{1}{8}$		
25	Wheel	34	1 $\frac{1}{8}$	2	8.16	1 $\frac{1}{8}$	2	1.79
	Pinion	19	1 $\frac{1}{8}$	2	4.56	1 $\frac{1}{8}$	2	
59	Wheel	50	1 $\frac{1}{8}$	2	12.00	1 $\frac{1}{8}$	2	1.66
	Pinion	30	1 $\frac{1}{8}$	2	7.20	1 $\frac{1}{8}$	2	
29	Wheel	37	1 $\frac{1}{8}$	1 $\frac{1}{4}$	8.88	1	2	2.46
	Pinion	15	1 $\frac{1}{8}$	1 $\frac{1}{4}$	3.60	1	2	
88	Wheel	82	1 $\frac{1}{8}$	1 $\frac{1}{8}$	19.68	1 $\frac{1}{8}$	2 $\frac{1}{4}$	5.46
	Pinion	15	1 $\frac{1}{8}$	1 $\frac{1}{8}$	3.60	1 $\frac{1}{8}$	2 $\frac{1}{4}$	
21	Wheel	36	1 $\frac{1}{8}$	1	8.64	1 $\frac{1}{8}$	2 $\frac{1}{4}$	2.
	Pinion	18	1 $\frac{1}{8}$	1	4.32	1 $\frac{1}{8}$	1 $\frac{1}{8}$	
19	Wheel	33	1 $\frac{1}{8}$	1 $\frac{1}{8}$	7.26	1 $\frac{1}{8}$		1.74
	Pinion	19	1 $\frac{1}{8}$	1 $\frac{1}{8}$	4.18	1 $\frac{1}{8}$		
47	Wheel	56	1 $\frac{1}{8}$	1 $\frac{1}{4}$	12.32	1 $\frac{1}{8}$	1 $\frac{1}{4}$	4.
	Pinion	14	1 $\frac{1}{8}$	1 $\frac{1}{4}$	3.08	1 $\frac{1}{8}$	1 $\frac{1}{4}$	
30	Wheel	60	1 $\frac{1}{8}$	1 $\frac{1}{4}$	12.	1 $\frac{1}{8}$	1 $\frac{1}{4}$	4.
	Pinion	15	1 $\frac{1}{8}$	1 $\frac{1}{4}$	3.	1 $\frac{1}{8}$	1 $\frac{1}{4}$	
79	Wheel	72	1 $\frac{1}{8}$	1 $\frac{1}{4}$	14.40	1 $\frac{1}{8}$	2 $\frac{1}{4}$	4.
	Pinion	18	1 $\frac{1}{8}$	1 $\frac{1}{4}$	3.60	1 $\frac{1}{8}$	2 $\frac{1}{4}$	
82	Wheel	30	1 $\frac{1}{8}$	1 $\frac{1}{4}$	6.	1 $\frac{1}{8}$	1 $\frac{1}{8}$	2.
	Pinion	15	1 $\frac{1}{8}$	1 $\frac{1}{4}$	3.	1 $\frac{1}{8}$	1 $\frac{1}{8}$	
86	Wheel	28	1 $\frac{1}{8}$	1 $\frac{1}{4}$	5.60	1 $\frac{1}{8}$	1 $\frac{1}{4}$	1.75
	Pinion	16	1 $\frac{1}{8}$	1 $\frac{1}{4}$	3.20	1 $\frac{1}{8}$	1 $\frac{1}{4}$	
64	Wheel	55	1 $\frac{1}{8}$	1 $\frac{1}{4}$	9.90			5.
	Pinion	11	1 $\frac{1}{8}$	1 $\frac{1}{4}$	1.98			
48	Wheel	60	1 $\frac{1}{8}$	1 $\frac{1}{4}$	9.60	1 $\frac{1}{8}$	1 $\frac{1}{4}$	3.
	Pinion	20	1 $\frac{1}{8}$	1 $\frac{1}{4}$	3.20	1 $\frac{1}{8}$	1 $\frac{1}{4}$	
92	Wheel	96	1 $\frac{1}{8}$	1 $\frac{1}{4}$	15.36	1	1 $\frac{1}{4}$	1.50
	Pinion	64	1 $\frac{1}{8}$	1 $\frac{1}{4}$	10.24	1	1 $\frac{1}{4}$	
54	Wheel	21	1 $\frac{1}{8}$	1 $\frac{1}{4}$	3.36			1.75
	Pinion	12	1 $\frac{1}{8}$	1 $\frac{1}{4}$	1.92			
53	Wheel	50	1 $\frac{1}{8}$	1 $\frac{1}{4}$	7.			2.50
	Pinion	20	1 $\frac{1}{8}$	1 $\frac{1}{4}$	2.80			
56	Wheel	48	1 $\frac{1}{8}$	1 $\frac{1}{4}$	5.76			2.29
	Pinion	21	1 $\frac{1}{8}$	1 $\frac{1}{4}$	2.52			
57	Wheel	65	1 $\frac{1}{8}$	1 $\frac{1}{4}$	7.80			3.82
	Pinion	17	1 $\frac{1}{8}$	1 $\frac{1}{4}$	2.04			
16	Wheel	45	1 $\frac{1}{8}$	1 $\frac{1}{4}$	4.50			3.00
	Pinion	15	1 $\frac{1}{8}$	1 $\frac{1}{4}$	1.50			
65	Wheel	70	1 $\frac{1}{8}$	1 $\frac{1}{4}$	7.			3.04
	Pinion	23	1 $\frac{1}{8}$	1 $\frac{1}{4}$	2.30			



Bevel Core or Mortise Wheels

Number		Cogs	Pitch	Face	Diam. in Inches	Back	Depth of Hub	Ratio one to
30	Wheel	48	3	11	46.08	-----	12	1.60
	Pinion	30	3	11	28.80	-----	12	
27	Wheel	79	2½	12	63.20	-----		2.54
	Pinion	81	2½	12	24.80	-----		
26	Wheel	72	2½	9½	57.60	-----		1.75
	Pinion	41	2½	9½	32.80	-----		
9	Wheel	80	2½	10	57.60	9	12	1.43
	Pinion	56	2½	10	40.32	3	10	
7	Wheel	90	2½	8½	64.80	9½	10	2.37
	Pinion	38	2½	8½	27.36	1½	9	
8	Wheel	72	2½	8½	51.84	9	10	1.60
	Pinion	45	2½	8½	32.40	2½	9	
5	Wheel	90	2½	8	64.80	10	10	3.
	Pinion	30	2½	8	21.60	1½	8½	
4	Wheel	80	2½	8	57.60	7½	10	1.48
	Pinion	54	2½	8	38.88	2½	8½	
23	Wheel	42	2½	8	30.24	5½	8½	1.2
	Pinion	35	2½	8	25.20	2½	8½	
11	Wheel	59	2½	7½	42.48	4½	7½	1.31
	Pinion	45	2½	7½	32.40	1½	7½	
10	Wheel	96	2	7	61.44	7	8	2.29
	Pinion	42	2	7	26.88	2½	7½	
29	Wheel	69	2	7	44.16	1½	7½	1.81
	Pinion	38	2	7	24.32	6½	7½	
21	Wheel	60	2	7	38.40	4	7½	1.11
	Pinion	54	2	7	34.56	2	7½	
14	Wheel	58	2	7	37.12	6½	5½	1.76
	Pinion	33	2	7	21.12	2	7½	
2	Wheel	70	2	6	44.80	8½	7½	2.50
	Pinion	28	2	6	17.92	½	6	
3	Wheel	56	2	6	35.84	7½	7½	2.
	Pinion	28	2	6	17.92	1	6	
13	Wheel	57	2	6	36.48	6	7½	1.50
	Pinion	38	2	6	24.32	1½	6	
1	Wheel	52	2	6	33.28	5½	6½	1.44
	Pinion	36	2	6	23.04	1½	6	
18	Wheel	49	2	6	31.36	4½	5	1.36
	Pinion	36	2	6	23.04	1½	5	

Bevel Core or Mortise Wheels—Continued

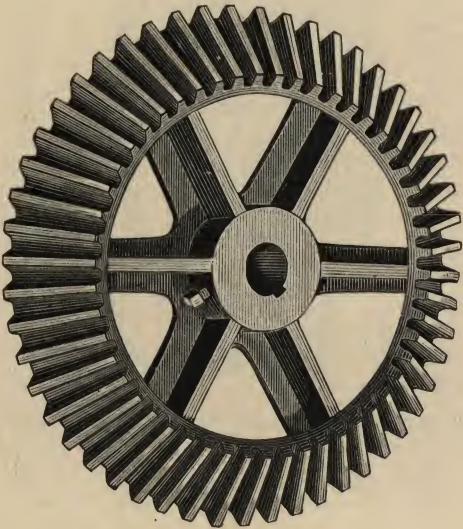
Number		Cogs	Pitch	Face	Diam. in Inches	Back	Depth of Hub	Ratio one to
12	Wheel Pinion	48	2	6	30.72	5 $\frac{3}{4}$	7 $\frac{3}{4}$	1.23
		39	2	6	24.96	2 $\frac{3}{4}$	6 $\frac{3}{4}$	
25	Wheel Pinion	48	2	6	30.72	3 $\frac{1}{2}$	6	1.20
		40	2	6	25.60	1 $\frac{5}{8}$	6	
15	Wheel Pinion	60	1 $\frac{3}{4}$	5	33.60	6 $\frac{3}{8}$	6 $\frac{3}{4}$	1.87
		32	1 $\frac{3}{4}$	5	17.92	1 $\frac{3}{8}$	5 $\frac{1}{4}$	
22	Wheel Pinion	43	1 $\frac{3}{4}$	5	24.08	3 $\frac{1}{4}$	5 $\frac{1}{4}$	1.19
		36	1 $\frac{3}{4}$	5	20.16	1 $\frac{1}{4}$	4 $\frac{3}{4}$	
6	Wheel Pinion	50	1 $\frac{3}{4}$	4 $\frac{1}{2}$	28.	5 $\frac{3}{4}$	5	2.50
		20	1 $\frac{3}{4}$	4 $\frac{1}{2}$	11.20	$\frac{3}{4}$	4 $\frac{1}{2}$	
28	Wheel Pinion	40	1 $\frac{3}{4}$	3 $\frac{1}{2}$	22.40	-----	-----	1.90
		21	1 $\frac{3}{4}$	3 $\frac{1}{2}$	11.76	-----	-----	
19	Wheel Pinion	56	1 $\frac{1}{2}$	4 $\frac{1}{2}$	26.88	4	4 $\frac{1}{2}$	2.24
		25	1 $\frac{1}{2}$	4 $\frac{1}{2}$	12.	$\frac{5}{8}$	4 $\frac{1}{2}$	
16	Wheel Pinion	52	1 $\frac{1}{2}$	4 $\frac{1}{2}$	24.96	5 $\frac{3}{8}$	5	2.
		26	1 $\frac{1}{2}$	4 $\frac{1}{2}$	12.48	1	4 $\frac{3}{4}$	
17	Wheel Pinion	40	1 $\frac{1}{2}$	4	19.20	3 $\frac{1}{4}$	4	2.
		20	1 $\frac{1}{2}$	4	9.60	1	4	
20	Wheel Pinion	48	1 $\frac{1}{2}$	4	23.04	3	4 $\frac{1}{2}$	1.54
		31	1 $\frac{1}{2}$	4	14.88	1 $\frac{5}{8}$	4 $\frac{1}{4}$	
24	Wheel Pinion	32	1 $\frac{1}{4}$	4	12.80	2 $\frac{1}{4}$	4	1.23
		26	1 $\frac{1}{4}$	4	10.40	1 $\frac{3}{8}$	4	

Bevel Wheels in Segments

Number		No. of Seg. in Wheel	Cogs	Pitch	Face	Diam. in Inches	Ratio Speed one to
4	Wheel Pinion	14	112	2	6	71.68	5.89
			29	2	6	18.56	
5	Wheel Pinion	16	336	1 $\frac{3}{4}$	4	188.16	11.20
			30	1 $\frac{3}{4}$	4	16.80	
1	Wheel Pinion	10	180	1 $\frac{3}{4}$	2 $\frac{3}{4}$	100.80	9.
			20	1 $\frac{3}{4}$	2 $\frac{3}{4}$	11.20	
2	Wheel Pinion	10	170	1 $\frac{3}{4}$	3	95.20	8.10
			21	1 $\frac{3}{4}$	3	11.76	
3	Wheel Pinion	6	150	1 $\frac{1}{2}$	3	72.	4.41
			34	1 $\frac{1}{2}$	3	16.32	

Bevel Wheels For Horsepowers

Number		Cogs	Pitch	Face	Diam. in Inches	Ratio
5	Wheel Pinion	144	2	6	92.96	6 to 1
		19	2	6	12.16	
3	Wheel Pinion	100	2	4	64.	9 $\frac{1}{4}$ to 1
		11	2	4	7.04	
2	Wheel Pinion	120	1 $\frac{1}{2}$	3 $\frac{5}{8}$	57.60	10 to 1
		12	1 $\frac{1}{2}$	3 $\frac{5}{8}$	5.76	
6	Wheel Pinion	79	1 $\frac{1}{2}$	4	37.92	7 $\frac{1}{4}$ to 1
		11	1 $\frac{1}{2}$	4	5.28	
4	Wheel Pinion	90	1 $\frac{1}{4}$	3	36.	8 $\frac{1}{4}$ to 1
		11	1 $\frac{1}{4}$	3	4.40	



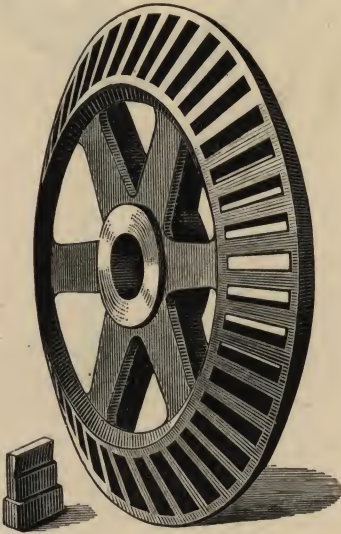
Miter Wheels

Miter wheels are wheels of same size, working together at an angle of 45 degrees.

Number	Cogs	Pitch	Face	Diam. in Inches	Back	Depth of Hub
1	72	2 $\frac{1}{16}$	9 $\frac{1}{2}$	50.40	4 $\frac{3}{8}$	10
10	56	2	7	35.84	3 $\frac{3}{8}$	7 $\frac{1}{2}$
2	56	2	6	35.84	2 $\frac{3}{8}$	6
30	48	1 $\frac{1}{2}$	6	24.08	2 $\frac{3}{8}$	6 $\frac{1}{2}$
4	36	1 $\frac{1}{2}$	4 $\frac{1}{2}$	20.16	2 $\frac{3}{8}$	5
8	46	1 $\frac{1}{2}$	4	25.76	2 $\frac{1}{2}$	4 $\frac{1}{2}$
8	42	1 $\frac{1}{2}$	4 $\frac{1}{2}$	20.16	2 $\frac{1}{2}$	4 $\frac{3}{8}$
35	21	1 $\frac{1}{2}$	3	10.08	1 $\frac{1}{2}$	3
31	45	1 $\frac{1}{2}$	4	18.	1 $\frac{1}{2}$	4 $\frac{1}{2}$
5	50	1 $\frac{1}{2}$	3	18.	1 $\frac{1}{2}$	3 $\frac{1}{2}$
12	68	1 $\frac{1}{2}$	3	24.48	1 $\frac{1}{2}$	3
9	39	1 $\frac{1}{2}$	2 $\frac{1}{2}$	14.04	1 $\frac{1}{2}$	2 $\frac{1}{2}$
34	44	1	3	14.08	1 $\frac{1}{2}$	3 $\frac{1}{2}$
43	23	1	2 $\frac{1}{2}$	7.36	----- 1 $\frac{1}{2}$ 1 $\frac{1}{2}$ 1 1 $\frac{1}{2}$ 1 $\frac{1}{2}$ -----	----- 2 $\frac{3}{8}$ 2 $\frac{1}{2}$ 2 $\frac{1}{2}$ 2 $\frac{1}{2}$ 2 $\frac{1}{2}$ -----
7	48	1	2 $\frac{1}{2}$	15.36		
20	24	1	2 $\frac{1}{2}$	7.68		
19	21	1	2 $\frac{1}{2}$	6.72		
11	30	1	2 $\frac{1}{2}$	9.60	----- 1 $\frac{1}{2}$ 1 $\frac{1}{2}$ 2 1 $\frac{1}{2}$ 1 $\frac{1}{2}$ -----	----- 2 $\frac{1}{2}$ 2 $\frac{1}{2}$ 2 2 2 -----
6	37	1	2	11.84		
41	24	1	2	7.68		
46	23	1	1 $\frac{1}{2}$	7.36		
45	36	----- 2 $\frac{1}{2}$ 2 $\frac{1}{2}$ 2 2 2 -----	2 $\frac{1}{2}$	10.08	----- 2 1 $\frac{1}{2}$ 2 1 $\frac{1}{2}$ -----	----- 2 $\frac{1}{2}$ 3 2 2 -----
42	47		2	13.16		
32	50		2	12.		
33	38		2	9.12		
14	25	4	1 $\frac{1}{2}$	6.	1	1 $\frac{1}{2}$

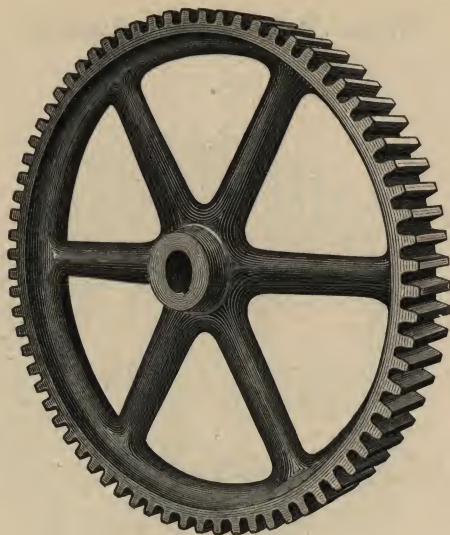
Miter Wheels—Continued

Number	Cogs	Pitch	Face	Diam. in Inches	Back	Depth of Hub
40	20	$1\frac{1}{8}$	$1\frac{3}{8}$	4.40	$1\frac{1}{8}$	$1\frac{1}{8}$
44	$\left\{ \begin{array}{l} 45 \\ 44 \end{array} \right.$	$1\frac{1}{8}$	$1\frac{1}{8}$	9.	$1\frac{1}{8}$	$3\frac{3}{8}$
18	26	$1\frac{1}{8}$	$1\frac{1}{8}$	8.80	$1\frac{1}{8}$	$3\frac{3}{8}$
22	25	$1\frac{1}{8}$	$1\frac{1}{8}$	5.20	$1\frac{1}{8}$	-----
27	13	$1\frac{1}{8}$	$1\frac{1}{8}$	5.	$1\frac{1}{8}$	-----
47	14	$1\frac{1}{8}$	$1\frac{1}{8}$	2.60	$1\frac{1}{8}$	$1\frac{1}{8}$
39	13	$1\frac{1}{8}$	$1\frac{1}{8}$	2.80	$1\frac{1}{8}$	-----
21	30	$1\frac{1}{8}$	$1\frac{1}{8}$	2.34	$1\frac{1}{8}$	$1\frac{1}{8}$
36	25	$1\frac{1}{8}$	$1\frac{1}{8}$	4.80	$1\frac{1}{8}$	-----
16	26	$1\frac{1}{8}$	$1\frac{1}{8}$	4.	$1\frac{1}{8}$	$1\frac{1}{8}$
37	28	$1\frac{1}{8}$	$1\frac{1}{8}$	3.64	$1\frac{1}{8}$	-----
28	17	$1\frac{1}{8}$	$1\frac{1}{8}$	3.36	$1\frac{1}{8}$	$1\frac{1}{8}$
29	17	$1\frac{1}{8}$	$1\frac{1}{8}$	2.04	$1\frac{1}{8}$	-----
38	40	$1\frac{1}{8}$	$1\frac{1}{8}$	2.04	$1\frac{1}{8}$	-----
		$1\frac{1}{8}$	$1\frac{1}{8}$	4.	$1\frac{1}{8}$	-----



Miter Core or Mortise Wheels

Number		Cogs	Pitch	Face	Diam. in Inches	Back	Depth of Hub
7	Wood	53	$3\frac{1}{2}$	15	59.36	-----	-----
	Iron	53	$3\frac{1}{2}$	15	59.36	-----	-----
5	Wood	53	$2\frac{1}{2}$	8	38.16	$4\frac{1}{2}$	$8\frac{1}{2}$
	Iron	54	$2\frac{1}{2}$	8	38.88	$2\frac{1}{2}$	8
2	Wood	46	2	7	29.44	5	$6\frac{1}{2}$
	Iron	46	2	7	29.44	$3\frac{1}{2}$	7
4	Wood	43	$1\frac{1}{2}$	5	24.08	4	$5\frac{1}{2}$
	Iron	43	$1\frac{1}{2}$	5	24.08	$2\frac{1}{2}$	$5\frac{1}{2}$
6	Wood	32	$1\frac{1}{2}$	$3\frac{1}{2}$	16.64	$2\frac{1}{2}$	$4\frac{1}{2}$
	Iron	32	$1\frac{1}{2}$	$3\frac{1}{2}$	16.64	$3\frac{1}{2}$	$4\frac{1}{2}$
1	Wood	40	$1\frac{1}{2}$	4	19.20	4	5
	Iron	40	$1\frac{1}{2}$	4	19.20	$1\frac{1}{2}$	4
3	Wood	35	$1\frac{1}{2}$	$3\frac{1}{2}$	14.	$2\frac{1}{2}$	4
	Iron	34	$1\frac{1}{2}$	$3\frac{1}{2}$	13.60	$1\frac{1}{2}$	$2\frac{1}{2}$



Spur Wheels

Number	Cogs	Pitch	Face	Diameter in Inches	Depth of Hub
286	210	2 $\frac{1}{2}$	10	168.	-----
285	180	2 $\frac{1}{2}$	12	144.	-----
317	136	2 $\frac{1}{2}$	12	108.80	16
342	122	2 $\frac{1}{2}$	8	97.6	-----
281	120	2 $\frac{1}{2}$	12	96.	12
297	59	2 $\frac{1}{2}$	11	47.20	11 $\frac{1}{2}$
282	36	2 $\frac{1}{2}$	11 $\frac{1}{2}$	28.80	11 $\frac{1}{2}$
86	33	2 $\frac{1}{2}$	8	26.40	8
68	30	2 $\frac{1}{2}$	10	24.	10
343	20	2 $\frac{1}{2}$	8	16.	8
15	16	2 $\frac{1}{2}$	8	12.08	8
265	14	2 $\frac{1}{2}$	5	11.2	2 $\frac{1}{2}$
1	100	2 $\frac{1}{2}$	8	72.	8
58	34	2 $\frac{1}{2}$	7	24.48	8
7	25	2 $\frac{1}{2}$	8	18.	8
49	20	2 $\frac{1}{2}$	4	14.40	4 $\frac{1}{2}$
10	16	2 $\frac{1}{2}$	8 $\frac{1}{2}$	11.52	8 $\frac{1}{2}$
316	14	2 $\frac{1}{2}$	5 $\frac{1}{2}$	10.08	5 $\frac{1}{2}$
266	14	2 $\frac{1}{2}$	3	9.52	3
89	13	2 $\frac{1}{16}$	2 $\frac{1}{2}$	8.58	3
346	120	2	4	76.80	-----
2	105	2	6	67.20	7
3	84	2	6	53.76	6 $\frac{1}{2}$
323	84	2	4 $\frac{1}{2}$	53.76	5 $\frac{1}{2}$
4	70	2	6	44.80	6 $\frac{1}{2}$
12	52	2	5 $\frac{1}{2}$	33.28	5 $\frac{1}{2}$
33	47	2	6	30.08	6
59	37	2	6	23.68	6
325	36	2	5	23.04	5 $\frac{1}{2}$
8	30	2	6	19.20	6
329	26	2	5	16.64	5 $\frac{1}{2}$
324	25	2	5	16.	5 $\frac{1}{2}$
345	24	2	4	15.36	-----
255	23	2	4	14.72	4 $\frac{1}{2}$
9	20	2	5	12.80	5
348	16	2	6 $\frac{1}{2}$	10.24	6
18	14	2	6	8.96	6
357	13	2	6	8.32	6
374	12	2	4 $\frac{1}{2}$	7.68	4 $\frac{1}{2}$
258	12	2	2 $\frac{1}{2}$	7.68	2 $\frac{1}{2}$

Spur Wheels—Continued

Number	Cogs	Pitch	Face	Diameter in Inches	Depth of Hub
88	14	1 $\frac{1}{2}$	3	84.0	3
87	12	1 $\frac{1}{2}$	3 $\frac{3}{4}$	7.20	4
330	108	1 $\frac{1}{2}$	4 $\frac{1}{2}$	60.48	4 $\frac{1}{2}$
32	64	1 $\frac{1}{2}$	6	35.84	6
335	60	1 $\frac{1}{2}$	4 $\frac{1}{2}$	33.60	5
295	40	1 $\frac{1}{2}$	5	22.40	5 $\frac{1}{2}$
293	32	1 $\frac{1}{2}$	4 $\frac{1}{2}$	17.92	4 $\frac{3}{4}$
294	29	1 $\frac{1}{2}$	5	16.24	5 $\frac{1}{2}$
334	20	1 $\frac{1}{2}$	4 $\frac{1}{2}$	11.20	5
14	19	1 $\frac{1}{2}$	3 $\frac{3}{4}$	10.64	3 $\frac{3}{4}$
349	18	1 $\frac{1}{2}$	4 $\frac{1}{2}$	10.08	4 $\frac{1}{2}$
21	17	1 $\frac{1}{2}$	6	9.52	6
331	14	1 $\frac{1}{2}$	4 $\frac{1}{2}$	7.84	4 $\frac{1}{2}$
340	12	1 $\frac{1}{2}$	5 $\frac{1}{2}$	6.72	5 $\frac{1}{2}$
337	60	1 $\frac{1}{2}$	4	31.20	4 $\frac{1}{2}$
86	15	1 $\frac{1}{2}$	3 $\frac{3}{4}$	7.80	4
336	15	1 $\frac{1}{2}$	4	7.80	4 $\frac{1}{2}$
356	12	1 $\frac{1}{16}$	3 $\frac{3}{8}$	6.	3 $\frac{3}{8}$
5	100	1 $\frac{1}{2}$	4	48.00	4
339	94	1 $\frac{1}{2}$	3 $\frac{1}{2}$	45.12	4 $\frac{1}{2}$
289	76	1 $\frac{1}{2}$	2 $\frac{1}{2}$	36.48	
47	74	1 $\frac{1}{2}$	4	35.52	5
48	42	1 $\frac{1}{2}$	3 $\frac{1}{2}$	20.16	3 $\frac{3}{8}$
54	38	1 $\frac{1}{2}$	4	18.24	4
353	30	1 $\frac{1}{2}$	4	14.4	
75	30	1 $\frac{1}{2}$	2	14.40	2 $\frac{1}{2}$
16	27	1 $\frac{1}{2}$	4	12.96	4
17	22	1 $\frac{1}{2}$	4	10.56	4
103	21	1 $\frac{1}{2}$	2	10.08	2
91	19	1 $\frac{1}{2}$	2 $\frac{1}{2}$	9.12	2 $\frac{1}{2}$
55A	18	1 $\frac{1}{2}$	4 $\frac{1}{2}$	8.64	4 $\frac{3}{4}$
55	18	1 $\frac{1}{2}$	4	8.64	4
76	18	1 $\frac{1}{2}$	2	8.64	2
318	17	1 $\frac{1}{2}$	2 $\frac{3}{4}$	8.16	
107	15	1 $\frac{1}{2}$	4	7.20	4
99	15	1 $\frac{1}{2}$	4	7.20	4
319	15	1 $\frac{1}{2}$	2 $\frac{3}{8}$	7.20	
101	14	1 $\frac{1}{2}$	4	6.72	4
94	13	1 $\frac{1}{2}$	5	6.24	5
98	13	1 $\frac{1}{2}$	4	6.24	4
90	13	1 $\frac{1}{2}$	3 $\frac{1}{2}$	6.24	3 $\frac{1}{2}$
104	13	1 $\frac{1}{2}$	3	6.24	3 $\frac{1}{2}$
111	13	1 $\frac{1}{2}$	2 $\frac{3}{8}$	6.24	3
354	10	1 $\frac{1}{2}$	4	4.8	4
141	10	1 $\frac{1}{2}$	2 $\frac{3}{4}$	4.80	2 $\frac{3}{4}$
147	9	1 $\frac{1}{2}$	2 $\frac{1}{16}$	4.32	2 $\frac{3}{8}$
268	8	1 $\frac{1}{2}$	5	3.84	5
113	8	1 $\frac{1}{2}$	4 $\frac{1}{2}$	3.84	4 $\frac{1}{2}$
315	17	1 $\frac{1}{16}$	2	7.82	
370	18	1 $\frac{1}{2}$	3 $\frac{1}{2}$	7.92	3 $\frac{1}{2}$
96	13	1 $\frac{1}{2}$	3 $\frac{1}{2}$	5.72	3 $\frac{1}{2}$
133	8	1 $\frac{1}{2}$	3 $\frac{3}{8}$	3.52	4 $\frac{1}{2}$
102	18	1 $\frac{1}{16}$	3	7.56	3
296	115	1 $\frac{1}{2}$	3	46.	4
31	90	1 $\frac{1}{2}$	4	36.	6
11	75	1 $\frac{1}{2}$	4	30.	4 $\frac{1}{2}$
28	72	1 $\frac{1}{2}$	2	28.80	2
53	69	1 $\frac{1}{2}$	2 $\frac{3}{4}$	27.60	3
46	57	1 $\frac{1}{2}$	4	22.80	4
43	51	1 $\frac{1}{2}$	2	20.40	2
19	45	1 $\frac{1}{2}$	4	18.	4 $\frac{1}{2}$
292	40	1 $\frac{1}{2}$	5	16.	
71	40	1 $\frac{1}{2}$	4	16.	4
13	30	1 $\frac{1}{2}$	4	12.	4
41	30	1 $\frac{1}{2}$	2	12.	2
375	25	1 $\frac{1}{2}$	4	10.	4 $\frac{1}{2}$
42	25	1 $\frac{1}{2}$	2	10.	2
85	23	1 $\frac{1}{2}$	4	9.20	4
61	23	1 $\frac{1}{2}$	2	9.20	2
20	22	1 $\frac{1}{2}$	4	8.80	4

Spur Wheels—Continued

Number	Oogs	Pitch	Face	Diameter in Inches	Depth of Hub
257	18	1½	4	7.20	4
108	18	1½	2	7.20	2
93	16	1½	4½	6.40	4½
109	15	1½	4	6.	4
105	14	1½	2½	5.60	2½
125	13	1½	3	5.20	4½
163	11	1½	2	4.40	2½
144	10	1½	3	4.	2½
121	9	1½	3	3.60	3
148	9	1½	2½	3.60	2½
70	25	1½	4	9.50	4
310	14	1½	3½	5.32	
126	14	1½	3	5.32	3
341	14	1½	2½	5.32	2½
162	12	1½	2	4.56	2½
135	11	1½	3	4.18	3
29	84	1½	2½	30.24	2½
63	36	1½	3	12.96	3
69	30	1½	3	10.80	3
358	21	1½	2½	7.56	2½
100	16	1½	3	5.76	3
115	14	1½	3	5.04	
300	14	1½	2½	5.04	
129	13	1½	2½	4.68	3
127	12	1½	3	4.32	3
182	11	1½	3½	3.96	2½
119	11	1½	3	3.96	3
142	10	1½	3	3.60	3½
149	10	1½	2	3.60	2
124	9	1½	3	3.24	3
146	8	1½	3½	2.88	3½
327	46	1½	3	16.56	3½
84	25	1¾	3½	8.75	3½
120	14	1½	2½	4.76	2½
181	13	1½	2½	4.42	2½
179	9	1½	1½	3.06	1½
66	15	1¾	2½	4.95	2½
1B	130	1	1½	41.60	2½
22	120	1	2	38.40	2½
6B	106	1	1½	33.92	2½
298	99	1	4	31.68	4½
263	99	1	2½	31.68	4
50	94	1	2	30.08	3
25	80	1	1½	25.60	1½
7B	79	1	1½	25.28	2
347	64	1	2	20.48	2½
27	40	1	1½	12.60	1½
26	31	1	2	9.92	2½
350	28	1	2½	8.96	2½
80	25	1	2	8.	2
97	22	1	2½	7.04	2½
106	20	1	3	6.40	3
114	20	1	2½	6.40	2½
326	19	1	2	6.08	2
365	19	1	2½	6.08	2½
110	18	1	3	5.76	3
180	17	1	1½	5.44	2
136	15	1	2½	4.80	2½
183	15	1	2½	4.80	2½
116	15	1	2	4.80	2
118	14	1	2	4.48	2
140	13	1	2½	4.16	2½
171	12	1	2½	3.84	2½
165	12	1	2	3.84	2
161	11	1	2½	3.52	2½
123	10	1	3	3.20	3
150	10	1	2½	3.20	2½
154	10	1	2	3.20	2
169	10	1	1½	3.20	2
117	20	1½	1½	6.	1½
359	18	1½	1½	5.4	1½
273	13	1½	2½	3.90	2½

Spur Wheels—Continued

Number	Cogs	Pitch	Face	Diameter in Inches	Depth of Hub
270	13	1 1/2	2	3.90	2
151	12	1 1/2	2	3.60	2
143	11	1 1/2	3 1/2	3.30	3 1/2
24	86	7 1/2	17 1/2	24.08	2 1/2
79	75	7 1/2	22 1/2	21.	2 1/2
239	34	7 1/2	1 1/2	9.52	1 1/2
82	30	7 1/2	2	8.40	2
267	18	7 1/2	1 1/2	5.04	1 1/2
156	16	7 1/2	2	4.48	2
145	15	7 1/2	2 1/2	4.20	2 1/2
152	14	7 1/2	2 1/2	3.92	2 1/2
153	14	7 1/2	3	3.92	3
128	13	7 1/2	2 1/2	3.64	2 1/2
159	13	7 1/2	2	3.64	2
262	12	7 1/2	1	3.36	1
183	12	7 1/2	1	3.36	1
155	11	7 1/2	2	3.08	2
182	11	7 1/2	1 1/2	3.08	2
160	14	3 1/2	2	3.78	2
74	93	1 1/2	2	24.18	2 1/2
360	34	1 1/2	1 1/2	8.84	2 1/2
122	18	1 1/2	2 1/2	4.68	2 1/2
361	18	1 1/2	2	4.68	2
269	16	1 1/2	2 1/2	4.16	2 1/2
166	13	1 1/2	1 1/2	3.38	2
172	12	1 1/2	1 1/2	3.12	1 1/2
177	11	1 1/2	2 1/2	2.86	2 1/2
187	11	1 1/2	2 1/2	2.86	2 1/2
303	11	1 1/2	1 1/2	2.86	2 1/2
139	17	3 1/2	2 1/2	4.25	2 1/2
12B	162	2 1/2	2	38.88	2 1/2
13B	142	2 1/2	2	34.08	2 1/2
2B	134	2 1/2	2	32.16	3
3B	125	2 1/2	2	30.	2 1/2
4B	117	2 1/2	2	28.08	2 1/2
5B	100	2 1/2	2	24.00	2 1/2
253	100	1	1	24.00	1 1/2
18B	93	2	2	22.32	2 1/2
15B	80	2	2	19.20	2 1/2
19B	75	1 1/2	1 1/2	18.	2
9B	74	2	2	17.76	2 1/2
10B	69	2	2	16.56	2 1/2
21B	65	2	2	15.60	2 1/2
371	65	1 1/2	1 1/2	15.60	2
372	65	1 1/2	1 1/2	15.60	1 1/2
344	64	2	2	15.36	2 1/2
23	60	1 1/2	1 1/2	14.40	2 1/2
20B	53	1 1/2	1 1/2	12.72	2 1/2
11B	48	2	2	11.52	2 1/2
291	45	1 1/2	1 1/2	10.80	2 1/2
16B	39	2	2	9.36	2 1/2
17B	33	2	2	7.92	2 1/2
52	30	1 1/2	1 1/2	7.20	1 1/2
254	25	1	1	6.00	1 1/2
158	24	2 1/2	2 1/2	5.76	2 1/2
81	24	1 1/2	1 1/2	5.76	2
164	21	2	2	5.04	2
321	21	1 1/2	1 1/2	5.04	2
322	21	1 1/2	1 1/2	5.04	2
181	19	1 1/2	1 1/2	4.56	1 1/2
167	17	2 1/2	2 1/2	4.08	2 1/2
362	17	1 1/2	1 1/2	4.08	1 1/2
311	16	2 1/2	2 1/2	3.84	2 1/2
369	16	2	2	3.84	2
195	16	1 1/2	1 1/2	3.84	1 1/2
168	15	2 1/2	2 1/2	3.60	2 1/2
351	15	2 1/2	2 1/2	3.60	2 1/2
184	14	1 1/2	1 1/2	3.36	1 1/2
173	14	1 1/2	1 1/2	3.36	1 1/2
323	13	1 1/2	1 1/2	3.12	1 1/2
176	12	2	2	2.88	2

Spur Wheels—Continued

Number	Oogs	Pitch	Face	Diameter in Inches	Depth of Hub
363	11	11	2	2.64	2½
197	11	11	1½	2.64	1½
308	11	11	1½	2.64	1½
274	9	11	2½	2.16	2½
190	18	11	1½	3.96	1½
364	14	11	2	3.08	2
189	14	11	1½	3.08	1½
275	13	11	1½	2.86	1½
178	10	11	2½	2.20	2½
306	9	11	2½	1.98	2½
206	8	11	1½	1.76	1½
287	56	11	1½	11.20	1½
338	46	11	1	9.20	1½
238	45	11	1½	9.	1½
820	45	11	1½	9.	1½
332	40	11	1½	8.	1½
237	40	11	1½	8.	1½
65	28	11	1½	5.60	1½
235	28	11	1½	5.60	1½
333	25	11	1½	5.	1½
373	21	11	1½	4.20	1½
170	20	11	3½	4.	3½
174	19	11	2½	3.80	2½
194	19	11	1½	3.80	1½
175	18	11	2½	3.60	3
196	17	11	1½	3.40	1½
193	16	11	2	3.20	2
191	16	11	1½	3.20	1½
185	15	11	1½	3.	1½
252	15	11	1½	3.	1½
180	14	11	1½	2.80	1½
299	14	11	1	2.80	1½
199	12	11	1½	2.40	1½
204	12	11	1½	2.40	1½
207	12	11	1½	2.40	1½
304	7	11	1½	1.40	1½
249	104	11	1½	18.72	1½
248	50	11	1½	9.	1½
223	19	11	1½	3.42	1½
188	18	11	2½	3.24	2½
201	18	11	1½	3.24	1½
366	10	11	1	1.8	1½
192	21	11	1½	3.57	1½
200	12	11	1	2.04	1½
250	90	11	1½	14.40	1½
314	88	11	1½	14.08	1½
40	82	11	2½	13.12	2½
367	75	11	2	12.	2½
288	55	11	1	8.80	1½
301	45	11	1½	7.20	1½
37	36	11	1½	5.76	1½
368	35	11	2	5.60	2
302	35	11	1½	5.60	1½
218	28	11	1½	4.48	1½
280	20	11	1	3.20	1
355	19	11	1½	3.04	1½
221	19	11	1½	3.04	1½
313	19	11	1½	3.04	1½
202	16	11	1½	2.56	1½
208	15	11	1	2.40	1½
203	12	11	1½	1.92	1½
276	12	11	1½	1.92	1½
205	11	11	1½	1.76	1½
225	11	11	1	1.76	1½
209	10	11	1	1.60	1
278	86	11	1½	12.90	1½
210	29	11	1½	4.35	1½
224	14	11	1½	2.10	1½
246	106	11	1½	14.84	1½
245	100	11	1½	14.	1½

Spur Wheels—Concluded

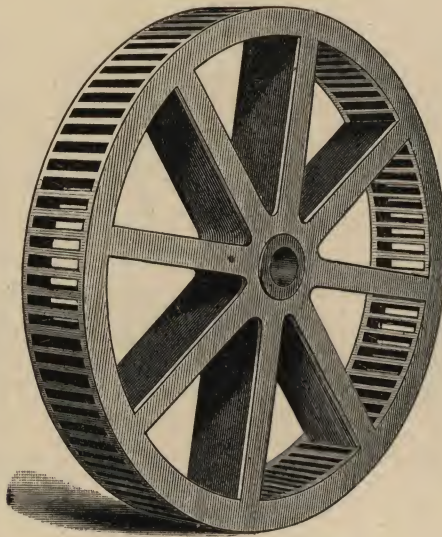
Number	Cogs	Pitch	Face	Diameter in Inches	Depth of Hub
244	90	$\frac{7}{16}$	$\frac{1}{16}$	12.60	$\frac{1}{16}$
39	34	$\frac{1}{16}$	$\frac{1}{16}$	4.76	$\frac{1}{16}$
277	20	$\frac{1}{16}$	$\frac{1}{16}$	2.80	$\frac{1}{16}$
251	104	$\frac{1}{16}$	$\frac{1}{16}$	13.52	$1\frac{1}{2}$
284	90	$\frac{1}{16}$	$\frac{1}{16}$	11.70	
312	22	$\frac{1}{16}$	$\frac{1}{16}$	2.86	
217	34	$\frac{1}{16}$	$\frac{1}{16}$	4.08	$\frac{1}{16}$
219	23	$\frac{1}{16}$	$\frac{1}{16}$	2.76	$\frac{1}{16}$
222	20	$\frac{1}{16}$	$\frac{1}{16}$	2.40	$\frac{1}{16}$
230	14	$\frac{1}{16}$	$\frac{1}{16}$	1.68	$\frac{1}{16}$
283	100	$\frac{1}{16}$	$\frac{1}{16}$	11.	
229	19	$\frac{1}{16}$	1	2.09	$1\frac{1}{2}$
241	100	$\frac{1}{16}$	$\frac{1}{16}$	10.	$1\frac{1}{2}$
271	45	$\frac{1}{16}$	$1\frac{1}{2}$	4.50	$1\frac{1}{2}$
214	32	$\frac{1}{16}$	$\frac{1}{16}$	3.20	$\frac{1}{16}$
215	29	$\frac{1}{16}$	$\frac{1}{16}$	2.90	$\frac{1}{16}$
226	26	$\frac{1}{16}$	$\frac{1}{16}$	2.60	$\frac{1}{16}$
231	18	$\frac{1}{16}$	$\frac{1}{16}$	1.80	$\frac{1}{16}$
232	15	$\frac{1}{16}$	$\frac{1}{16}$	1.50	$\frac{1}{16}$
233	13	$\frac{1}{16}$	$\frac{1}{16}$	1.30	$\frac{1}{16}$
307	10	$\frac{3}{32}$	$\frac{1}{16}$	.90	
242	110	$\frac{1}{4}$	$\frac{3}{16}$	8.80	$\frac{3}{4}$
305	35	$\frac{1}{4}$	$\frac{1}{16}$	2.80	

Internal Spur Wheels

Number	Cogs	Pitch	Face	Diameter
3	48	$2\frac{1}{2}$	7	33.40
1	280	2	6	179.20
2	240	2	6	153.60
4	110	$1\frac{1}{2}$	$2\frac{1}{4}$	39.60

Spur Wheels in Segments

Number	Cogs	Pitch	Face	Diameter
4	180	$2\frac{1}{2}$	10	144.
3	165	$2\frac{1}{4}$	7	118.80
1	176	2	6	112.64
2	266	$1\frac{1}{2}$	3	106.40
5	208	$\frac{7}{8}$	$2\frac{1}{4}$	58.24



Spur Core or Mortise Wheels

Number	Cogs	Pitch	*Face	Diameter in Inches	Depth of Hub
15	88	3	10	84.48	12
14	120	2½	11	96.	
22	98	2½	12	78.40	15½
17	90	2½	10	72.	13½
18	44	2½	13	35.20	15½
5	68	2½	6	48.96	7
3	48	2½	6½	34.56	8½
12	26	2½	6½	18.72	
4	132	2	7	84.48	9
19	131	2	4½	83.84	
1	96	2	6½	61.44	8
8	87	2	6	55.68	8
7	76	2	6	48.64	7
13	74	2	6	47.36	8½
21	63	2	8	40.32	
2	54	2	6½	34.56	8½
9	52	2	8	33.28	9
6	40	2	6	25.60	7
11	37	2	6	23.68	6½
12	26	2	6½	18.64	7½
10	42	1¾	6	23.52	6½
16	88	1½	4	42.24	6
20	78	1½	3	37.44	5

*Can be increased to any desired face.



Spur Pinions For Mortise Wheels

Or Pinions to work with Spur Core, or Mortise Wheels, of Corresponding Pitch.

Number	Cogs	Pitch	*Face	Diameter in Inches	†Depth of Hub
21	29	3	11½	27.84	-----
23	59	2½	11	47.20	-----
20	36	2½	11½	28.60	-----
16	34	2½	6½	27.20	-----
10	23	2½	6	18.40	-----
29	46	2½	8	33.12	9
18	39	2½	7	28.08	-----
12	56	2	7	35.84	-----
9	48	2	6	30.72	-----
25	43	2	7½	27.52	-----
8	43	2	7	27.52	-----
28	42	2	8	26.88	-----
26	40	2	10	25.60	11
14	38	2	7	24.32	-----
17	36	2	6½	23.04	-----
11	35	2	7	22.40	-----
13	34	2	6	21.76	-----
2	32	2	6½	20.48	-----
1	30	2	7	19.20	-----
7	27	2	7	17.28	-----
4	24	2	6½	15.36	-----
5	22	2	6½	14.08	-----
3	20	2	7	12.80	-----
6	18	2	7	11.52	-----
19	14	2	6½	8.96	-----
15	36	1½	6	20.16	-----
24	33	1½	4½	15.84	-----
22	26	1½	4½	12.48	-----
27	24	1½	4½	11.52	5

*Can be increased to any desired face.

†Depth of hub will always equal the face.

Worm Wheels

Number		Teeth	Pitch	Face	Diameter in Inches
1	Wheel	125	1½	3	70
	Worm	-----	1½	3	5½
2	Wheel	99	1	2½	31½
	Pinion	16	1	2½	5½
	Worm	-----	1	2½	5½
3	Wheel	72	1	2½	23
	Worm	-----	1	2½	5½

Ratchet Wheels

No.	Teeth	Face	Diameter	Depth of Hub	No.	Teeth	Face	Diameter	Depth of Hub
24	38	1	24	2	35	19	1 $\frac{1}{2}$	4 $\frac{1}{2}$	-----
2	30	1	16 $\frac{1}{2}$	2 $\frac{1}{2}$	36	18	1 $\frac{1}{2}$	4 $\frac{1}{2}$	-----
1	40	1 $\frac{1}{2}$	16	1 $\frac{1}{2}$	37	12	1 $\frac{1}{2}$	3 $\frac{1}{2}$	-----
25	36	1 $\frac{1}{2}$	14	1 $\frac{1}{2}$	38	16	1 $\frac{1}{2}$	3 $\frac{1}{2}$	-----
26	114	1 $\frac{1}{2}$	13	-----	20	21	1 $\frac{1}{2}$	3	1
5	36	1 $\frac{1}{2}$	11 $\frac{1}{2}$	1 $\frac{1}{2}$	18	21	1 $\frac{1}{2}$	3	1 $\frac{1}{2}$
27	85	1 $\frac{1}{2}$	11 $\frac{1}{2}$	-----	9	30	1 $\frac{1}{2}$	2 $\frac{3}{4}$	-----
6	48	1 $\frac{1}{2}$	10 $\frac{3}{4}$	1 $\frac{1}{2}$	17	108	1 $\frac{1}{2}$	6 $\frac{1}{2}$	-----
4	36	1 $\frac{1}{2}$	10	1 $\frac{1}{2}$	11	35	1 $\frac{1}{2}$	6 $\frac{1}{2}$	-----
13	46	1 $\frac{1}{2}$	10	1 $\frac{1}{2}$	30	28	1 $\frac{1}{2}$	6	-----
28	60	1 $\frac{1}{2}$	9 $\frac{1}{2}$	-----	31	21	1 $\frac{1}{2}$	5 $\frac{1}{2}$	-----
7	18	1 $\frac{1}{2}$	9	1 $\frac{1}{2}$	32	59	1 $\frac{1}{2}$	5	-----
10	38	1 $\frac{1}{2}$	8 $\frac{1}{2}$	1 $\frac{1}{2}$	12	36	1 $\frac{1}{2}$	5	-----
29	12	1 $\frac{1}{2}$	8	-----	33	28	1 $\frac{1}{2}$	5	-----
8	25	1	7	2	16	18	1 $\frac{1}{2}$	5	-----
14	49	1 $\frac{1}{2}$	7	1 $\frac{1}{2}$	34	18	1 $\frac{1}{2}$	4 $\frac{1}{2}$	-----

Internal Ratchet Wheels

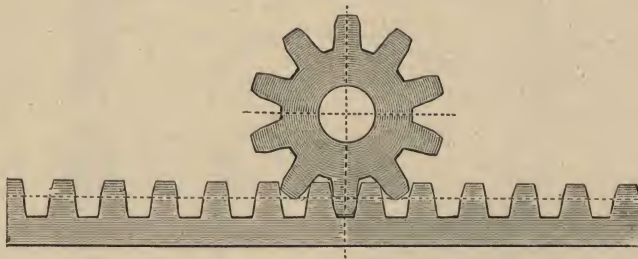
RIGHT AND LEFT

Number	Teeth	Pitch	Face	Diameter
1	19	7 $\frac{1}{8}$	1	5

Side Ratchet Wheels

RIGHT AND LEFT

Number	Cogs	Pitch	Face	Diameter
1	40	7 $\frac{1}{8}$	1 $\frac{1}{2}$	5 $\frac{1}{2}$
2	16	7 $\frac{1}{8}$	1 $\frac{1}{2}$	3 $\frac{1}{2}$
3	13	7 $\frac{1}{8}$	1 $\frac{1}{2}$	4



Spur Racks

Pinions for these Racks will be found under the head of Spur Wheels.

No.	Pitch	Face	Length in Inches	Cogs in each Length	No.	Pitch	Face	Length in Inches	Cogs in each Length
1	1 $\frac{1}{2}$	4	41 $\frac{1}{8}$	24	11	2 $\frac{3}{8}$	30 $\frac{3}{4}$	35	
7	1 $\frac{1}{2}$	2 $\frac{3}{8}$	23 $\frac{1}{4}$	17	13	2 $\frac{1}{2}$	26	30	
10	1 $\frac{1}{2}$	3	36	29	14	1 $\frac{1}{2}$	24	28	
4	1 $\frac{1}{2}$	3	25	20	15	1 $\frac{1}{2}$	19 $\frac{1}{2}$	22	
3	1 $\frac{1}{2}$	3	30 $\frac{1}{2}$	27	16	1 $\frac{1}{2}$	12 $\frac{1}{2}$	20	
9	1 $\frac{1}{2}$	3	30 $\frac{1}{2}$	27	21	1	23 $\frac{1}{2}$	48	
6	1 $\frac{1}{2}$	2 $\frac{5}{8}$	24	21	17	1	22 $\frac{1}{2}$	46	
2	1	2 $\frac{1}{2}$	50 $\frac{1}{2}$	49	18	1	12	24	
5	1	2 $\frac{1}{2}$	32	32	20	7 $\frac{1}{8}$	6 $\frac{1}{8}$	16	
12	1	1 $\frac{1}{2}$	33	33	19	7 $\frac{1}{8}$	9	28	



Steel Tackle Blocks

Wood Tackle Blocks

Steel Tackle Blocks

Length of Shell, Inches	Diameter of Rope, Inches	Iron Bushed			Snatch Blocks		
		Single	Double	Triple	Size of Shell, Inches	Diameter of Rope, Inches	Iron Bushed
3	$\frac{3}{8}$	.70	1.30	1.75			
4	$\frac{7}{16}$	.85	1.60	2.15			
5	$\frac{9}{16}$	.90	1.75	2.25	6	$\frac{7}{8}$	5.00
6	$\frac{1}{8}$	1.10	2.00	2.90	7	$\frac{7}{8}$	5.50
7	$\frac{1}{8}$	1.30	2.40	3.50	8	1	7.00
8	1	1.65	2.85	4.25	9	$1\frac{1}{8}$	8.00
10	$1\frac{1}{8}$	2.75	4.50	6.25	10	$1\frac{1}{8}$	9.00

Wood Tackle Blocks, Iron Strapped

Size of Shell, Inches	Diameter of Rope, Inches	Iron Bushed			Snatch Blocks		
		Single	Double	Triple	Size of Shell, Inches	Diameter of Rope, Inches	Iron Bushed
3	$\frac{3}{8}$	.70	1.30	1.75			
3 $\frac{1}{2}$	$\frac{7}{16}$	.75	1.45	2.00	6	$\frac{7}{8}$	4.00
4	$\frac{9}{16}$	.85	1.60	2.15	7	$\frac{7}{8}$	4.75
5	$\frac{1}{8}$	.90	1.75	2.25	8	1	5.75
6	$\frac{1}{8}$	1.10	2.00	2.90	9	$1\frac{1}{8}$	6.75
7	$\frac{1}{8}$	1.30	2.40	3.50	10	$1\frac{1}{8}$	8.50
8	1	1.65	2.85	4.25	12	$1\frac{1}{8}$	10.00
9	1	1.85	3.40	4.75	14	$1\frac{3}{8}$	13.00
10	$1\frac{1}{8}$	2.75	4.50	6.25	16	2	17.00
11	$1\frac{1}{8}$	4.45	7.50	10.65	18	$2\frac{1}{8}$	25.00
12	$1\frac{1}{8}$	4.45	7.50	10.65	20	$2\frac{1}{8}$	38.00
13	$1\frac{1}{8}$	7.00	10.50	15.00	22	3	55.00
14	$1\frac{1}{8}$	7.00	10.50	15.00	24	$3\frac{1}{2}$	70.00
15	$1\frac{1}{8}$	8.00	13.00	18.00			
16	1 $\frac{1}{2}$	10.00	15.00	22.00			



Square Head
Square Nut



Hexagon Head
Hexagon Nut

Machine Bolts

PRICE PER 100

Length Inches	Diameter Inches										
	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{9}{16}$ & $\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	1 $\frac{1}{8}$	1 $\frac{1}{2}$
$\frac{1}{2}$ to 1 $\frac{1}{2}$	1.70	2.00	2.40	2.80	3.60	5.20	7.20	10.50	15.10	22.50	30.00
2	1.78	2.12	2.56	3.00	3.86	5.58	7.70	11.20	16.00	23.70	31.50
2 $\frac{1}{2}$	1.86	2.24	2.72	3.20	4.12	5.96	8.20	11.90	16.90	24.90	33.00
3	1.94	2.36	2.88	3.40	4.38	6.34	8.70	12.60	17.80	26.10	34.50
3 $\frac{1}{2}$	2.02	2.48	3.04	3.60	4.64	6.72	9.20	13.30	18.70	27.30	36.00
4	2.10	2.60	3.20	3.80	4.90	7.10	9.70	14.00	19.60	28.50	37.50
4 $\frac{1}{2}$	2.18	2.72	3.36	4.00	5.16	7.48	10.20	14.70	20.50	29.70	39.00
5	2.26	2.84	3.52	4.20	5.42	7.86	10.70	15.40	21.40	30.90	40.50
5 $\frac{1}{2}$	2.34	2.96	3.68	4.40	5.68	8.24	11.20	16.10	22.30	32.10	42.00
6	2.42	3.08	3.84	4.60	5.94	8.62	11.70	16.80	23.20	33.30	43.50
6 $\frac{1}{2}$	2.50	3.20	4.00	4.80	6.20	9.00	12.20	17.50	24.10	34.50	45.00
7	2.58	3.32	4.16	5.00	6.46	9.38	12.70	18.20	25.00	35.70	46.50
7 $\frac{1}{2}$	2.66	3.44	4.32	5.20	6.72	9.76	13.20	18.90	25.90	36.90	48.00
8	2.74	3.56	4.48	5.40	6.98	10.14	13.70	19.60	26.80	38.10	49.50
9	2.80	3.60	4.60	5.60	7.20	10.40	14.20	20.30	27.70	39.30	51.00
10	3.06	4.04	5.12	6.20	8.02	11.66	15.70	22.40	30.40	42.90	55.50
11	3.22	4.28	5.44	6.60	8.54	12.42	16.70	23.80	32.20	45.30	58.50
12	3.38	4.52	5.76	7.00	9.06	13.18	17.70	25.20	34.00	47.70	61.50
13	3.54	4.76	6.08	7.40	9.58	13.94	18.70	26.60	35.80	50.10	64.50
14	3.70	5.00	6.40	7.80	10.10	14.70	19.70	28.00	37.60	52.50	67.50
15	3.86	5.24	6.72	8.20	10.62	15.46	20.70	29.40	39.40	54.90	70.50
16	4.02	5.48	7.04	8.60	11.14	16.22	21.70	30.80	41.20	57.30	73.50
17	4.18	5.72	7.36	9.00	11.66	16.98	22.70	32.20	43.00	59.70	76.50
18	4.34	5.96	7.68	9.40	12.18	17.74	23.70	33.60	44.80	62.10	79.50
19	4.50	6.20	8.00	9.80	12.70	18.50	24.70	35.00	46.60	64.50	82.50
20	4.66	6.44	8.32	10.20	13.22	19.26	25.70	36.40	48.40	66.90	85.50
21	-----	-----	-----	-----	-----	-----	26.70	37.80	50.20	69.30	88.50
22	-----	-----	-----	-----	-----	-----	27.70	39.20	52.00	71.70	91.50
23	-----	-----	-----	-----	-----	-----	28.70	40.60	53.80	74.10	94.50
24	-----	-----	-----	-----	-----	-----	29.70	42.00	55.60	76.50	97.50
25	-----	-----	-----	-----	-----	-----	30.70	43.40	57.40	78.90	100.50
26	-----	-----	-----	-----	-----	-----	31.70	44.80	59.20	81.30	103.50
27	-----	-----	-----	-----	-----	-----	32.70	46.20	61.00	83.70	106.50
28	-----	-----	-----	-----	-----	-----	33.70	47.60	62.80	86.10	109.50
29	-----	-----	-----	-----	-----	-----	34.70	49.00	64.60	88.50	112.50
30	-----	-----	-----	-----	-----	-----	35.70	50.40	66.40	90.90	115.50

Above list is for bolts with square heads and square nuts.

Bolts with hexagon heads or hexagon nuts, 10 per cent extra.

Bolts with hexagon heads and hexagon nuts, 20 per cent extra.

Bolts with square heads and oblong nuts, 10 per cent extra.

ALWAYS GIVE STYLE OF HEAD AND NUT WHEN ORDERING

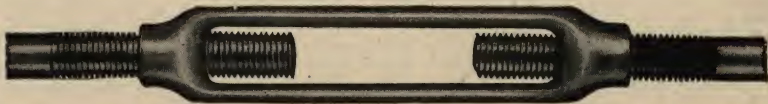


Rods

With Square Head on one end and Square Nut on the other, or Square Nut on each end, as preferred.

PRICE PER POUND

Length	$\frac{3}{8}$ Diameter	$\frac{1}{2}$ to $1\frac{1}{8}$ Diam.	$1\frac{1}{2}$ to $1\frac{3}{4}$ Diam.	$1\frac{3}{8}$ to 2 Diam.
20" to 4'	.09.2	.08.8	.09.2	.10.0
4' to 8'	.08.8	.08.4	.08.8	.09.4
8' to 12'	.08.4	.08.0	.08.4	.08.8
12' to 20'	.08.0	.07.6	.08.0	.08.4



Turnbuckles

Size, Inches	Price	Size, Inches	Price
$\frac{3}{8}$	.40	$1\frac{1}{8}$	1.75
$\frac{7}{16}$	.42	$1\frac{1}{4}$	2.00
$\frac{1}{2}$	.45	$1\frac{3}{4}$	2.25
$\frac{5}{8}$	.48	2	2.65
$\frac{3}{4}$	.50	$2\frac{1}{4}$	3.10
$\frac{7}{8}$	.63	$2\frac{1}{2}$	3.50
$\frac{15}{16}$	.75	$2\frac{3}{4}$	4.00
1	.88	$2\frac{7}{8}$	4.50
$1\frac{1}{8}$	1.00	$2\frac{15}{16}$	5.00
$1\frac{1}{4}$	1.25	3	5.50
$1\frac{1}{2}$	1.38		6.00
$1\frac{3}{4}$	1.50		6.50



Lag Screws

PRICE PER 100

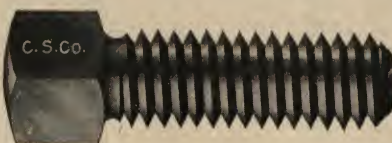
Length, Inches	$\frac{1}{4}$ & $\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{8}$	$\frac{1}{2}$	$\frac{9}{16}$ & $\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
$1\frac{1}{2}$	2.25	2.70	3.15	3.75				
2	2.45	2.96	3.47	4.11	6.00			
$2\frac{1}{2}$	2.65	3.22	3.79	4.47	6.50	9.20		
3	2.85	3.48	4.11	4.83	7.00	9.90	15.00	
$3\frac{1}{2}$	3.05	3.74	4.43	5.19	7.50	10.60	16.00	22.00
4	3.25	4.00	4.75	5.55	8.00	11.30	17.00	23.30
$4\frac{1}{2}$	3.45	4.26	5.07	5.91	8.50	12.00	18.00	24.60
5	3.65	4.52	5.39	6.27	9.00	12.70	19.00	25.90
$5\frac{1}{2}$	3.85	4.78	5.71	6.63	9.50	13.40	20.00	27.20
6	4.05	5.04	6.03	6.99	10.00	14.10	21.00	28.50
$6\frac{1}{2}$			6.35	7.35	10.50	14.80	22.00	29.80
7			6.67	7.71	11.00	15.50	23.00	31.10
$7\frac{1}{2}$			6.99	8.07	11.50	16.20	24.00	32.40
8			7.31	8.43	12.00	16.90	25.00	33.80
9			7.95	9.15	13.00	18.30	27.00	36.30
10				9.87	14.00	19.70	29.00	38.90
11				10.59	15.00	21.10	31.00	41.50
12				11.31	16.00	22.50	33.00	44.10



Square and Hexagon Head Cap Screws

PRICE PER 100

Diameter of Head Square	$\frac{3}{8}$	$\frac{7}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{1}{2}$
Diameter of Head Hexagon	$\frac{7}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{3}{8}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{1}{2}$
Diameter of Screw	$\frac{1}{4}$	$\frac{5}{8}$	$\frac{3}{8}$	$\frac{7}{8}$	$\frac{1}{2}$	$\frac{1}{8}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{4}$	$1\frac{3}{4}$	$1\frac{1}{2}$
Length under Head to Extreme Point	1	3.00	3.25	3.75	4.50	5.70							
	1	3.15	3.40	3.90	4.70	5.80							
	1	3.25	3.50	4.00	4.90	5.90	9.25	9.25					
	1	3.50	3.75	4.25	5.30	6.50	9.50	9.50	12.50				
	1	3.75	4.00	4.50	5.70	7.10	10.00	10.00	13.50	18.40			
	1	4.00	4.25	4.85	6.10	7.70	10.75	10.75	14.50	19.70	22.75		
	2	4.25	4.85	5.20	6.50	8.30	11.50	11.50	15.50	21.00	25.00	34.00	38.50
	2	4.70	5.35	5.55	7.15	8.90	12.60	12.60	16.50	22.40	27.25	36.75	42.00
	2	5.25	5.80	6.00	7.50	9.50	13.60	13.60	17.50	23.70	29.50	39.50	45.50
	2	5.75	6.30	6.65	7.90	10.10	14.40	14.40	19.00	25.00	31.75	42.25	49.00
	3	6.25	6.80	7.20	8.40	10.70	15.20	15.20	20.60	26.40	34.00	45.00	52.50
	3				9.15	11.50	16.00	16.00	22.10	28.20	36.25	47.75	56.00
	3				9.75	12.30	17.30	17.30	23.70	30.00	38.50	50.50	59.50
	3				10.50	13.10	18.60	18.60	25.30	31.80	40.75	53.25	63.00
	4				11.10	13.90	19.90	19.90	26.90	33.60	43.00	56.00	66.50
Threads to Inch	20	18	16	14	12	12	11	10	9	8	7	7	7
Add for each $\frac{1}{4}$ -Inch	.40	.50	.60	.70	.80	1.30	1.30	1.60	1.80	2.25	2.75	3.50	3.50



Iron Set Screws

PRICE PER 100

Diameter of Screw, Inches	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$
Length under Head to Extreme Point	1	1.80	2.00	2.35								
	1	1.90	2.10	2.45	2.80	3.30						
	1	2.00	2.20	2.50	2.90	3.40	5.00	5.50				
	1	2.10	2.30	2.60	3.00	3.60	5.50	5.00				
	1	2.15	2.35	2.65	3.10	3.80	5.75	5.75	10.00			
	1	2.30	2.50	2.85	3.50	4.30	6.50	6.50	11.00	15.50		
	1	2.50	2.70	3.10	4.00	4.80	7.25	7.25	12.00	16.20	22.00	
	1	2.75	3.00	3.50	4.50	5.40	8.00	8.00	12.80	17.70	24.00	41.70
	1	3.25	3.50	4.00	5.15	6.00	8.80	8.80	13.60	19.20	26.00	45.00
	1	3.75	4.00	4.50	5.75	6.75	9.60	9.60	14.50	20.70	28.00	48.30
	1	4.25	4.50	5.00	6.35	7.50	10.40	10.40	15.40	22.20	30.00	51.60
	1	4.75	5.00	5.50	6.75	8.25	11.20	11.20	16.30	23.70	32.00	54.90
	1	5.25	5.50	6.00	7.20	9.00	12.00	12.00	17.30	25.20	34.00	58.20
	1				7.60	9.75	12.75	12.75	18.40	26.70	36.00	61.50
	1				8.00	10.50	13.50	13.50	19.50	28.20	38.00	64.80
	1				8.50	11.25	14.30	14.30	20.75	29.70	40.00	68.10
	1				9.00	12.00	15.10	15.10	22.00	31.20	42.00	71.40
	1								23.50	32.70	44.00	74.70
	1								25.00	34.20	46.00	78.00
	1								26.50	35.70	48.00	81.30
	1									37.20	50.00	84.60
	1											105.60

Threads to the inch same as Cap Screws in table above.



Milled Stud Bolts

PRICE PER 100

Diameter, Inches	$\frac{3}{8}$	$\frac{7}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{1}{2}$
Length, Inches <div>1 1/2 1 3/4 1 3/8 2 2 1/4 2 1/2 2 3/4 3 3 1/4 3 1/2 3 3/4 4 4 1/4 4 1/2 4 3/4 5 5 1/4 5 1/2 5 3/4 6</div>	3.35	4.05	4.40	5.10	6.10	6.50	8.80	12.00	17.00
	3.50	4.20	4.60	5.30	6.30	6.70	9.10	12.50	18.00
	3.65	4.35	4.80	5.50	6.50	6.90	9.40	13.00	19.00
	3.80	4.50	5.00	5.70	6.70	7.10	9.70	13.50	20.00
	3.95	4.65	5.20	5.90	6.90	7.30	10.00	14.00	21.00
	4.10	4.80	5.40	6.10	7.10	7.50	10.30	14.50	22.00
	4.25	4.95	5.60	6.30	7.30	7.70	10.60	15.00	23.00
	4.40	5.10	5.80	6.50	7.50	7.90	10.90	15.50	24.00
	5.25	6.00	6.70	7.50	8.50	8.90	11.20	16.00	25.00
	5.40	6.20	6.90	7.70	8.70	9.10	11.50	16.50	26.00
	5.55	6.40	7.10	7.90	8.90	9.30	11.80	17.00	27.00
	5.75	6.60	7.30	8.10	9.10	9.50	12.10	17.50	28.00
	6.70	7.40	8.25	9.15	10.15	10.55	12.40	18.00	29.00
	6.80	7.50	8.40	9.30	10.30	10.70	12.70	18.50	30.00
	7.00	7.60	8.55	9.45	10.45	10.85	13.00	19.00	31.00
	7.20	7.70	8.70	9.60	10.60	11.00	13.30	19.50	32.00
	7.80	8.35	9.15	10.00	10.90	11.30	13.60	20.00	33.00
	8.85	9.40	10.20	11.10	12.00	12.40	14.00	20.50	34.00
	9.00	9.55	10.35	11.25	12.15	12.55	14.30	21.00	35.00
	9.15	9.70	10.50	11.40	12.30	12.70	14.60	21.50	36.00
	9.30	9.85	10.65	11.55	12.45	12.85	14.90	22.00	37.00
Threads to inch	16	14	12	12	11	10	9	8	7
Add for each 1/4 in.	.15	.20	.20	.20	.25	.30	.40	.60	1.00



Boiler Patch Bolts

PRICE PER 100. TURNED AND THREADED.

Diameter	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
Length from Largest Diameter of Bevel to Point <div>1 1 1/8 1 1/4 1 1/2 1 3/4</div>	3.75	4.25	6.00	9.50	13.50
	4.00	4.50	6.50	9.85	14.00
	4.25	4.80	6.80	10.25	14.75
	4.50	5.10	7.25	10.65	15.50
	4.75	5.50	7.75	11.05	16.25
	5.25	6.50	8.25		
Threads to inch	12	12	12	12	12



Iron Wood Screws
PER GROSS

	Length of Screw, Inches																									
No.	$\frac{1}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{3}{8}$	2	$2\frac{1}{8}$	$2\frac{1}{4}$	$2\frac{3}{8}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6						
0	.72	.72	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---						
1	.72	.72	.72	.72	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---						
2	.72	.72	.72	.72	.72	.74	---	---	---	---	---	---	---	---	---	---	---	---	---	---						
3	.72	.72	.72	.72	.75	.78	.80	.88	.98	---	---	---	---	---	---	---	---	---	---	---						
4	.72	.72	.75	.75	.78	.82	.84	.92	1.05	---	---	---	---	---	---	---	---	---	---	---						
5	---	.75	.78	.78	.82	.85	.87	.98	1.10	1.30	1.45	1.55	1.90	---	---	---	---	---	---	---						
6	---	.78	.80	.82	.85	.90	.92	1.05	1.15	1.35	1.50	1.60	2.00	2.40	2.95	---	---	---	---	---						
7	---	.82	.84	.86	.90	.94	.98	1.10	1.20	1.45	1.55	1.65	2.10	2.60	3.00	---	---	---	---	---						
8	---	.88	.90	.92	.95	1.00	1.05	1.15	1.30	1.50	1.60	1.75	2.20	2.70	3.05	3.90	4.90	---	---	---						
9	---	.94	.96	.98	1.00	1.05	1.10	1.20	1.35	1.55	1.65	1.85	2.30	2.80	3.10	4.00	5.10	---	---	---						
10	---	---	1.05	1.07	1.10	1.15	1.20	1.30	1.40	1.60	1.75	1.95	2.40	2.90	3.15	4.10	5.20	---	---	---						
11	---	---	---	1.10	1.12	1.15	1.25	1.30	1.40	1.50	1.70	1.85	2.05	2.50	3.00	3.20	4.20	5.30	---	---						
12	---	---	---	---	1.20	1.25	1.35	1.40	1.55	1.65	1.80	2.00	2.20	2.60	3.10	3.30	4.30	5.40	7.00	8.10	10.00					
13	---	---	---	---	---	1.25	1.35	1.45	1.60	1.70	1.80	2.00	2.20	2.35	2.70	3.20	3.40	4.40	5.60	7.20	8.30	10.30				
14	---	---	---	---	---	---	1.30	1.50	1.55	1.70	1.90	2.00	2.25	2.45	2.65	2.90	3.30	3.50	4.50	5.90	7.60	8.60	11.00			
15	---	---	---	---	---	---	---	1.65	1.75	2.00	2.15	2.35	2.60	2.75	3.10	3.30	3.60	3.80	4.75	6.20	7.85	9.10	11.60			
16	---	---	---	---	---	---	---	---	1.80	2.00	2.50	2.50	2.80	2.90	3.10	3.50	3.65	3.90	4.20	4.95	6.50	8.15	9.70	12.40		
17	---	---	---	---	---	---	---	---	---	---	2.70	2.75	3.20	3.30	3.70	3.85	4.20	4.50	4.80	5.40	7.00	8.60	10.10	13.00		
18	---	---	---	---	---	---	---	---	---	---	---	3.30	3.30	3.80	4.00	4.20	4.55	4.70	5.00	5.50	6.15	7.60	9.15	11.00	14.50	
20	---	---	---	---	---	---	---	---	---	---	---	---	3.50	4.00	4.30	4.50	4.60	5.30	5.80	6.10	6.50	7.30	8.60	9.85	11.50	16.00
22	---	---	---	---	---	---	---	---	---	---	---	---	---	4.80	5.10	5.20	5.50	6.10	6.70	7.20	7.50	8.70	9.70	11.20	13.00	18.00
24	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---



Flat Head



Round Head

Flat and Round Head Stove Bolts

PRICE PER 100

Length, Inches	Diameter, Inches				
	$\frac{1}{8}$ & 5-32	$\frac{3}{16}$	7-32 & $\frac{1}{2}$	$\frac{7}{8}$	$\frac{3}{4}$
$\frac{1}{8}$	.85	.85	1.20	---	---
$\frac{3}{8}$	.85	.85	1.20	---	---
$\frac{1}{2}$	.85	.85	1.20	---	---
$\frac{5}{8}$	.85	.85	1.20	---	---
1	.90	.90	1.25	1.75	2.65
$1\frac{1}{8}$	.90	.90	1.30	1.80	2.70
$1\frac{1}{4}$	.95	.95	1.35	1.85	2.75
$1\frac{3}{8}$	1.00	1.00	1.40	1.90	2.85
$1\frac{1}{2}$	1.05	1.05	1.45	1.95	2.90
$1\frac{3}{4}$	1.10	1.10	1.50	2.00	3.00
2	1.15	1.15	1.55	2.05	3.10
$2\frac{1}{8}$	1.20	1.20	1.60	2.15	3.20
$2\frac{1}{4}$	---	1.25	1.70	2.30	3.40
$2\frac{3}{8}$	---	1.30	1.80	2.40	3.60
$2\frac{1}{2}$	---	1.40	1.90	2.50	3.80
3	---	1.50	2.00	2.60	4.00
$3\frac{1}{8}$	---	1.60	2.10	2.70	4.20
$3\frac{1}{4}$	---	1.70	2.20	2.85	4.40
$3\frac{3}{8}$	---	1.80	2.30	3.00	4.60
4	---	1.90	2.40	3.15	4.80
$4\frac{1}{8}$	---	2.00	2.50	3.30	5.00
$4\frac{1}{4}$	---	2.10	2.60	3.45	5.20
$4\frac{3}{8}$	---	2.20	2.70	3.60	5.40
$4\frac{1}{2}$	---	2.30	2.85	3.75	5.60
5	---	2.40	3.00	3.90	5.80
$5\frac{1}{8}$	---	2.50	3.15	4.10	6.00
$5\frac{1}{4}$	---	2.60	3.30	4.30	6.20
$5\frac{3}{8}$	---	2.75	3.45	4.50	6.40
6	---	2.90	3.60	4.70	6.60
$6\frac{1}{8}$	---	3.05	3.75	4.90	6.80
$6\frac{1}{4}$	---	---	---	5.10	7.00



Finished Nut



Semi-Finished Nut

Finished Case-Hardened and Semi-Finished Hexagon Nuts

Width, Inches	Thickness, Inches	Size of Bolt, Inches	Number of Threads	Finished Case-Hardened Nuts, per 100	Semi-Finished Nuts, per 100
$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{2}$	20	6.00	2.00
19-32	$\frac{1}{8}$	$\frac{1}{8}$	18	7.00	2.50
$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{8}$	16	8.00	3.25
25-32	$\frac{1}{8}$	$\frac{1}{8}$	14	9.00	3.75
$\frac{3}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	13 or 12	10.00	4.50
31-32	$\frac{1}{8}$	$\frac{1}{8}$	12	12.00	5.50
$1\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	11	16.00	6.50
$1\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{8}$	10	22.00	8.50
$1\frac{1}{2}$	$\frac{1}{8}$	$\frac{1}{8}$	9	27.00	12.00
$1\frac{3}{4}$	1	1	8	38.00	17.50
$2\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{4}$	7	50.00	24.00
2	$1\frac{1}{2}$	$1\frac{1}{2}$	7	66.00	38.00
$2\frac{1}{8}$	$1\frac{3}{4}$	$1\frac{3}{4}$	6	90.00	49.00
$2\frac{1}{4}$	$1\frac{3}{4}$	$1\frac{3}{4}$	6	120.00	69.00
$2\frac{3}{8}$	$1\frac{3}{4}$	$1\frac{3}{4}$	$5\frac{1}{2}$	145.00	93.00
$2\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{3}{4}$	5	175.00	130.00
$2\frac{3}{4}$	$1\frac{3}{4}$	$1\frac{3}{4}$	5	250.00	170.00
$3\frac{1}{8}$	2	2	$4\frac{1}{2}$	325.00	215.00
$3\frac{1}{2}$	$2\frac{1}{4}$	$2\frac{1}{4}$	$4\frac{1}{2}$	550.00	310.00



Wrought Washers

Diameter, Inches	Size of Hole, Inches	Thickness, Wire Gauge	Size of Bolt, Inches	Price per 100 lbs. in 200-lb. Kegs	Number in One Keg
$\frac{1}{8}$	$\frac{1}{8}$	18	$\frac{1}{8}$	14.00	85200
$\frac{3}{16}$	$\frac{1}{8}$	16	$\frac{1}{8}$	12.20	34800
$\frac{1}{4}$	$\frac{1}{8}$	16	$\frac{1}{8}$	11.40	26200
$1\frac{1}{8}$	$\frac{1}{8}$	14	$\frac{1}{8}$	10.50	14400
$1\frac{1}{4}$	$\frac{1}{8}$	14	$\frac{1}{8}$	9.80	8400
$1\frac{1}{2}$	$\frac{1}{8}$	12	$\frac{1}{8}$	9.40	5800
$1\frac{3}{4}$	$\frac{1}{8}$	12	$\frac{1}{8}$	9.30	4600
2	$\frac{1}{8}$	10	$\frac{1}{8}$	9.20	2600
$2\frac{1}{4}$	$\frac{1}{8}$	9	$\frac{1}{8}$	9.10	2200
$2\frac{1}{2}$	$\frac{1}{8}$	8	$\frac{1}{8}$	9.00	1600
$2\frac{3}{4}$	$1\frac{1}{8}$	8	1	9.00	1200
3	$1\frac{1}{8}$	8	$1\frac{1}{8}$	9.00	888
$3\frac{1}{4}$	$1\frac{1}{8}$	8	$1\frac{1}{8}$	9.20	900
$3\frac{1}{2}$	$1\frac{1}{8}$	7	$1\frac{1}{8}$	9.20	600
$3\frac{3}{4}$	$1\frac{1}{8}$	7	$1\frac{1}{8}$	9.20	570
4	$1\frac{1}{8}$	7	$1\frac{1}{8}$	9.50	460
$4\frac{1}{4}$	2	7	$1\frac{3}{4}$	9.50	432
$4\frac{1}{2}$	$2\frac{1}{8}$	7	$1\frac{3}{4}$	9.50	366
			2	9.50	356

Cast Iron Washers

We have many patterns for Cast Washers. When ordering, give diameter of bolt or rod and outside diameter of washer. Prices on application.

Standard Steam, Gas and Water Pipe

Nominal inside diameter.....	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5
Price per foot.....	.05 $\frac{1}{2}$	.06 $\frac{1}{2}$	.06 $\frac{3}{4}$	.08 $\frac{1}{2}$	.11 $\frac{1}{2}$	.16 $\frac{1}{2}$	.22 $\frac{1}{2}$	.27	.36	.57 $\frac{1}{2}$	.75 $\frac{1}{2}$	.95	1.08	1.30
Nominal weight per foot.....	.24	.42	.56	.84	1.12	1.67	2.24	2.68	3.61	5.74	7.54	9.00	10.66	12.49
Thickness.....	.068	.088	.091	.109	.113	.134	.140	.145	.154	.204	.217	.226	.237	.246
Threads per inch of screw.....	27	18	18	14	14	11 $\frac{1}{2}$	11 $\frac{1}{2}$	11 $\frac{1}{2}$	11 $\frac{1}{2}$	8	8	8	8	8
Nominal inside diameter.....	6	7	8	8	9	10	10	10	11	12	12	14	15	
												15 O.D.	16 O.D.	
Price per foot.....	1.88	2.35	2.50	2.82	3.40	3.20	3.50	4.00	4.50	4.50	4.90	6.50	7.00	
Nominal weight per foot.....	18.76	23.27	25.00	28.18	33.70	32.00	35.00	40.00	45.00	45.00	49.00	60.70	64.90	
Thickness.....	.280	.301	.276	.322	.344	.278	.306	.366	.375	.328	.375	.375	.375	
Threads per inch of screw.....	8	8	8	8	8	8	8	8	8	8	8	8	8	

Extra Strong Steam, Gas and Water Pipe

Size.....	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$	2	$2\frac{1}{2}$	3				
Price per foot.....	.11	.11	.11	.12	.15	.22	.30	.36	.50	.81	1.05			
Nominal weight per foot.....	.29	.54	.74	1.09	1.39	2.17	3.00	3.63	5.02	7.67	10.25			
Thickness.....	.10	.123	.127	.149	.167	.182	.194	.203	.221	.280	.304			
Nominal outside diameter.....	.405	.540	.675	.840	1.05	1.315	1.66	1.90	2.375	2.875	3.500			
Nominal inside diameter.....	.205	.294	.421	.542	.736	.951	1.272	1.494	1.933	2.315	2.892			
Size.....	$3\frac{3}{8}$	4	$4\frac{1}{2}$	5	6	7	8	9	10	11	12			
Price per foot.....	1.33	1.50	1.95	2.16	2.90	3.80	4.30	5.00	5.50	6.25	6.50			
Nominal weight per foot.....	12.47	14.97	18.22	20.54	28.58	37.67	43.00	48.73	54.74	60.08	65.42			
Thickness.....	.321	.341	.360	.375	.437	.500	.500	.500	.500	.500	.500			
Nominal outside diameter.....	4.00	4.500	5.000	5.563	6.625	7.625	8.625	9.625	10.75	11.75	12.75			
Nominal inside diameter.....	3.358	3.818	4.280	4.813	5.750	6.625	7.625	8.625	9.75	10.75	11.75			

Double Extra Strong Steam, Gas and Water Pipe

Size.....	$\frac{3}{8}$	$\frac{1}{2}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8
Price per foot.....	.25	.30	.37	.52	.65	.95	1.37	1.92	2.45	2.85	3.30	3.80	5.30	6.25	7.20
Nominal weight per foot.....	1.70	2.44	3.65	5.20	6.40	9.02	13.68	18.56	22.75	27.48	32.53	38.12	53.11	62.38	71.62
Thickness.....	.298	.314	.364	.388	.406	.442	.560	.608	.642	.682	.718	.750	.875	.875	.875
Actual outside diameter.....	.84	1.05	1.315	1.660	1.900	2.375	2.875	3.500	4.000	4.500	5.000	5.563	6.625	7.625	8.625
Nominal inside diameter.....	.244	.422	.587	.885	1.088	1.491	1.755	2.284	2.716	3.136	3.564	4.063	4.875	5.875	6.875

Unless otherwise ordered, standard black pipe, random lengths, with threads and couplings, will be shipped.

For cut lengths an extra charge will be made above random lengths.

For pipe smoothed on the inside, known as plugged and reamed, an extra charge will be made above regular pipe.

For galvanized pipe an extra charge will be made above black.

For asphalted pipe an extra charge will be made above black.

Extra Strong and Double Extra Strong will be shipped in random lengths and plain ends, unless otherwise ordered. For pipe fitted with threads and couplings an extra charge will be made above regular.

PIPE TRADE CUSTOMS

Every piece of pipe, tubing, casing, boiler tubing, line pipe and drive pipe is carefully tested, but as it is impossible to always detect imperfections, the only guarantee that is given is to replace such goods as prove defective. Under no circumstances is the seller responsible for any damages beyond the price of the goods. No charges for labor or expense required to repair defective goods or occasioned by them will be allowed. If the goods are defective, the measure of damages is the price of the defective pieces.

Claims for shortage or deductions for erroneous charges must be promptly presented or will not be allowed.

The outside diameter of goods heavier than "standard" is the same as standard, the extra thickness being on the inside, so that the different weights of the same size use the same couplings.

WROUGHT IRON PIPE

SPECIAL NOTICE—Until within comparatively a short time all Wrought Pipe was made from Genuine Wrought Iron Skelp. Today practically all is made from Steel. To prevent any confusion we desire to emphasize to the trade the fact that the term Wrought Iron Pipe is now construed to mean Merchant Pipe, and all quotations are based on Steel. If Genuine Wrought Iron Pipe is required, the inquiry or order must so state, when quotation or shipment will be made accordingly. Genuine Wrought Iron pipe is considerably more expensive than Steel.

Special Pipe Cut to Order

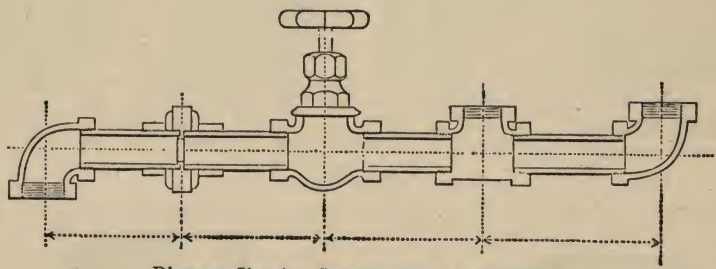


Diagram Showing Screwed Valve and Fittings

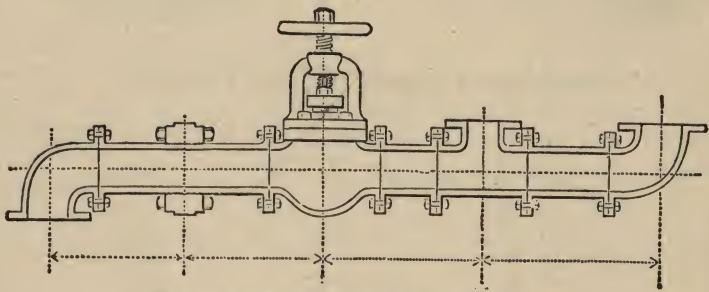


Diagram Showing Flanged Valve and Fittings

We are equipped with the most improved facilities for cutting, threading, and fitting all sizes of pipe to sketch.

In laying out work of this kind great care should be taken in making sketches. All measurements should be given center to center, as shown in above diagrams. It is also necessary to know for what purpose the pipe is to be used and pressure required to stand.

Cutting Standard Pipe Threads

Size	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	
Price	each	.05	.05	.05	.05	.05	.06	.07	.08	.10	.15
Size	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	9	10	
Price	each	.20	.25	.35	.45	.55	.70	.85	1.00	1.25	1.50
Size	12	14	15	16	18	20	22	24	-----	-----	
Price	each	2.50	3.50	3.50	5.00	8.00	10.00	12.50	15.00	-----	-----

Locknut Threads

Size -----	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Price ----- each	.10	.10	.10	.10	.12	.14	.16	.20	.30	.40	.50	.70

Locknut Nipples

Made to order and charged as cut pipe, threads extra.

Standard Steel Boiler Tubes

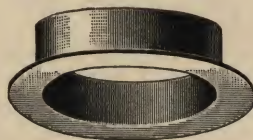
Outside diameter.....inches	1	1½	1¾	2	2½	2¾	3	3½	3¾	4
Price, per foot.....	.30	.28	.27	.22	.20	.24	.28	.34	.40	.44
Thickness.....inches	.095	.095	.095	.095	.095	.109	.109	.109	.120	.120
Thickness nearest BGM W G.....	13	13	13	13	13	12	12	12	11	11
Nominal weight, per foot.....	.90	1.15	1.40	1.66	1.91	2.16	2.75	3.04	3.33	4.28
Outside diameter.....inches	4	4½	5	6	7	8	9	10	11	12
Price, per foot.....	.55	.62	.75	1.00	1.20	1.50	1.70	2.10	2.50	2.90
Thickness.....inches	.134	.134	.148	.165	.165	.180	.203	.220	.229	.238
Thickness nearest BGM W G.....	10	10	9	8	8	7	6	5	4½	4
Nominal weight, per foot.....	5.47	6.17	7.58	10.16	11.90	13.65	16.76	21.00	25.00	28.50

Waste will be charged when tubes are cut from standard lengths.

Boiler tubes are rated by their outside diameters.



Plain

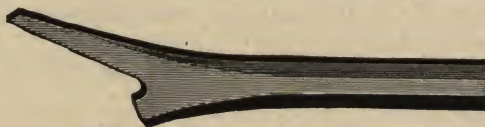


With Flange

Seamless Copper Boiler Ferrules

Inside Diameter of Ferrules.	Thickness of Ferrules.	Width of Ferrules.	PRICE PER HUNDRED	
			Plain.	Flanged.
1½	⅝	12	7.50	9.50
1¾	⅝	12	11.50	13.50
2	⅝	12	8.50	10.50
2	⅝	12	12.50	14.50
2½	⅝	12	16.50	18.50
2½	⅝	12	18.50	20.50
3	⅝	12	23.00	25.00
3½	⅝	12	28.00	30.00
4	⅝	12	34.00	36.00

In addition to above, we are prepared to furnish Ferrules in any quantity, of any size, thickness or width desired.



Boiler Makers' Beading Tool

Priceeach, 1.50



Boiler Makers' Caulking Tools

Priceeach, 1.00

Boiler Rivets

Per pound10



Tee

Size	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$
Cast iron, R. H.		.05	.05	.06	.08	.10 $\frac{1}{2}$.16	.20
Cast iron, R. and L.		.06	.06	.07	.09	.12	.18	.23
Cast iron, reducing				.07	.09	.12	.18	.23
Cast iron, 45°				.07	.09	.12	.18	.23
Malleable, R. H.			.06	.07	.10	.12	.19	.24
Malleable, R. and L.	.06	.07	.08	.10	.15	.22	.25	.35
Malleable, R. H., galvanized		.09	.11	.13	.17	.25	.30	.40
Malleable, 45°	.08	.09	.11	.14	.20	.32	.40	.60
Malleable, 45°, galvanized		.08	.10	.12	.18	.26	.36	.54
Malleable, Street		.12	.15	.20	.25	.40	.50	.85
Malleable, Street, galvanized		.10	.10	.12	.20	.25	.40	.55
		.12	.12	.15	.28	.35	.55	.80
Size	3	3 $\frac{1}{2}$	4	4 $\frac{1}{2}$	5	6	7	8
Cast iron, R. H.	.75	1.06	1.20	1.75	2.00	2.75	4.70	6.75
Cast iron, R. and L.	.85							
Cast iron, reducing	.85	1.20	1.40	2.00	2.30	3.15	5.40	7.75
Cast iron, 45°	.90	1.25	1.45	2.20	2.50	3.45	5.90	8.50
Malleable, R. H.	1.50	2.25	3.00	3.50	4.00	6.00		
Malleable, R. and L.								
Malleable, R. H., galvanized	2.60	3.75	5.00		6.50	10.00		
Malleable, 45°	2.50	3.25	4.50	5.25	6.00	7.50		
Malleable, 45°, galvanized	3.75	4.75	6.75		9.00	11.00		

Size	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{2}$	
Cast iron, R. H.		.08	.08	.09	.12	.15	.23	.29	.41	
Cast iron, reducing				.10	.14	.17	.27	.33	.47	
Malleable, R. H.	.07	.08	.09	.11	.15	.25	.30	.45	.60	
Malleable, galvanized	.09	.10	.13	.16	.20	.38	.50	.70	1.00	
Size	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	10	12
Cast iron, R. H.	1.10	1.50	1.75	2.55	3.00	4.00	6.80	9.75	19.50	29.00
Cast iron, reducing	1.25	1.75	2.00	2.95	3.50	4.60	7.80	11.25	22.50	33.50
Malleable, R. H.	1.70	2.50	3.40	4.25	5.00	7.75				
Malleable, galvanized	3.00	4.25	5.75		8.00	12.00				



Malleable, Right and Left

Size	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Wrought iron	.05	.05	.06	.07	.10	.13	.17	.21	.28
Wrought iron, galvanized	.06	.06	.08	.10	.13	.18	.25	.32	.40
Malleable, R. and L.		.04	.06	.08	.12	.16	.25	.36	.55
Malleable, R. and L., galvanized		.06	.09	.10	.17	.25	.35	.52	.70
Size	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	10
Wrought iron	.60	.80	1.00	1.50	1.65	2.40	3.25	4.25	7.50
Wrought iron, galvanized	.80	1.05	1.40	2.00	2.25	3.25			10.00
Malleable, R. and L.	1.00								
Malleable, R. and L., galvanized	1.50								



Crosses

Size	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Cast iron				.16	.22	.27	.42	.58	.75	1.80
Cast iron, reducing				.18	.25	.30	.46	.60	.83	1.45
Malleable		.09	.10	.16	.20	.30	.40	.60	1.00	1.75
Malleable, galvanized		.12	.14	.25	.29	.45	.60	.90	1.50	2.75
Size	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	10	12
Cast iron	2.00	2.70	3.15	4.60	5.50	7.25	12.25	17.50	35.00	52.50
Cast iron, reducing	2.20	3.00	3.50	5.10	6.00	8.00	13.50	19.25	38.50	58.00
Malleable	3.00	3.25	5.25		7.50	13.00				
Malleable, galvanized	4.50		8.00							

Reducers

Size	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Malleable		.05	.06	.07	.10	.16	.20	.28	.45	.70
Malleable, galvanized		.08	.10	.10	.15	.25	.35	.45	.75	1.05
Size	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	10	12
Cast iron				1.85	2.00	2.70	5.35	6.75	10.00	15.00
Malleable	1.00	1.50	1.85							
Malleable, galvanized	1.65	2.40	3.05							

Caps

Size	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Malleable		.03	.04	.05	.08	.12	.16	.24	.32	.45
Malleable, galvanized		.04	.05	.08	.12	.17	.24	.38	.52	.76
Size	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	10	12
Cast iron			.87	1.05	1.20	1.55	2.50	2.85	5.50	7.00
Malleable	.85	1.00	1.20		2.50	3.50				
Malleable, galvanized	1.30	1.60	2.00							

Plugs

Size	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Cast iron	.02	.02	.02	.02	.03	.04	.05	.07	.10	.18
Cast iron, galvanized		.04	.04	.04	.06	.08	.10	.14	.20	.36
Size	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	10	12
Cast iron	.25	.38	.42	.65	.88	1.20	1.85	2.75	3.75	5.00
Cast iron, galvanized	.50	.76	.84	1.30	1.75	2.40	3.70	5.50	7.50	10.00

Bushings

Size	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Cast iron			.04	.04	.05	.06	.07	.09	.14	.21
Malleable		.04	.04	.04	.05	.06	.07	.09	.14	.21
Malleable, galvanized		.08	.08	.08	.10	.12	.14	.18	.28	.42
Size	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	10	12
Cast iron	.30	.40	.50	.75	.93	1.25	1.87	2.75	3.75	5.00

NOTE—Cast Iron Bushings up to $2\frac{1}{2}$ " inclusive, reduce two or more sizes; 3" and over, reduce one or more sizes. Malleable Bushings reduce one size only.



Close

Wrought Iron Nipples

BLACK. RIGHT HAND



Shoulder

Length, Inches					Prices		Prices of Extra Long Nipples									
Close	Short	Long			Size	Close or Short	Long	Lengths, Inches								
								4	5	6	7	8	9	10	11	12
3/4	1 1/2	2	2 1/2	3	3 1/2	.04	.06	.07	.08	.10	.12	.14	.15	.17	.18	.19
1	1 1/2	2	2 1/2	3	3 1/2	.04	.06	.07	.08	.10	.12	.14	.15	.17	.18	.19
1 1/4	1 1/2	2	2 1/2	3	3 1/2	.04	.06	.07	.08	.10	.12	.14	.15	.17	.18	.19
1 1/2	2	2 1/2	3	3 1/2	4	.05	.07	.08	.10	.12	.14	.16	.18	.20	.22	.23
1 3/4	2	2 1/2	3	3 1/2	4	.06	.09	.11	.13	.17	.18	.20	.22	.24	.26	.26
2	2 1/2	3	3 1/2	4	4 1/2	.08	.13	.15	.18	.23	.25	.28	.31	.34	.36	.36
2 1/4	2 1/2	3	3 1/2	4	4 1/2	.11	.17	.20	.24	.29	.33	.36	.40	.44	.47	.47
2 1/2	2 1/2	3	3 1/2	4	4 1/2	.13	.20	.25	.29	.36	.40	.45	.50	.54	.59	.59
2 3/4	2 1/2	3	3 1/2	4	4 1/2	.18	.27	.32	.38	.50	.54	.59	.65	.72	.77	.77
3	3	3 1/2	4	4 1/2	5	.39	.59	.68	.90	.97	1.06	1.17	1.26	1.35	1.45	1.50
3 1/4	3	3 1/2	4	4 1/2	5	.48	.72	.85	1.08	1.20	1.33	1.45	1.58	1.70	1.80	1.70
3 1/2	3	3 1/2	4	4 1/2	5	.75	1.05	1.30	1.45	1.60	1.75	1.90	2.05	2.20	2.35	2.40
3 3/4	3	3 1/2	4	4 1/2	5	.85	1.20	1.52	1.69	1.87	2.05	2.22	2.40	2.57	2.75	2.85
4	4	4 1/2	5	5 1/2	6	1.25	1.70	2.25	2.50	2.75	2.95	3.17	3.40	3.60	3.85	3.85
4 1/4	4 1/2	5	5 1/2	6	6 1/2	1.55	2.45	2.58	2.83	3.10	3.35	3.60	3.85	4.05	4.30	4.65
4 1/2	4 1/2	5	5 1/2	6	6 1/2	1.85	2.90	3.05	3.35	3.70	4.00	4.30	4.60	4.90	5.20	5.55
4 3/4	5	5 1/2	6	6 1/2	7	3.20	-----	3.60	4.05	4.45	4.90	5.30	5.75	6.15	6.55	7.00
5	5	5 1/2	6	6 1/2	8	3.55	-----	4.05	4.55	5.05	5.50	6.00	6.50	7.00	7.40	7.90
5 1/4	5	5 1/2	6	6 1/2	9	5.25	-----	-----	-----	6.50	7.10	7.75	8.40	9.00	9.60	10.00
5 1/2	5	5 1/2	6	6 1/2	10	6.75	-----	-----	-----	8.25	8.90	9.70	10.40	11.15	11.85	12.65
5 3/4	5	5 1/2	6	6 1/2	12	8.00	-----	-----	-----	10.00	10.80	11.75	12.70	13.65	14.60	15.55

GALVANIZED. RIGHT HAND

Length, Inches					Prices		Prices of Extra Long Nipples									
Close	Short	Long			Size	Close or Short	Long	Lengths, Inches								
								4	5	6	7	8	9	10	11	12
3/4	1 1/2	2	2 1/2	3	3 1/2	.06	.11	.12	.15	.17	.21	.24	.26	.29	.31	.34
1	1 1/2	2	2 1/2	3	3 1/2	.06	.11	.12	.15	.17	.21	.24	.26	.29	.31	.34
1 1/4	1 1/2	2	2 1/2	3	3 1/2	.06	.11	.12	.15	.17	.21	.24	.26	.29	.31	.34
1 1/2	2	2 1/2	3	3 1/2	4	.06	.11	.13	.16	.18	.22	.26	.28	.31	.33	.36
1 3/4	2	2 1/2	3	3 1/2	4	.08	.14	.15	.18	.21	.26	.29	.32	.35	.38	.41
2	2 1/2	3	3 1/2	4	4 1/2	.11	.19	.24	.28	.34	.38	.42	.47	.51	.55	.55
2 1/4	2 1/2	3	3 1/2	4	4 1/2	.17	.29	.32	.38	.45	.51	.57	.63	.69	.75	.75
2 1/2	2 1/2	3	3 1/2	4	4 1/2	.21	.35	.39	.46	.55	.63	.70	.77	.84	.91	.91
2 3/4	2 1/2	3	3 1/2	4	4 1/2	.27	.47	.52	.61	.74	.83	.93	1.03	1.13	1.23	1.23
3	3	3 1/2	4	4 1/2	5	.56	.86	1.00	1.26	1.41	1.56	1.71	1.86	2.01	2.16	2.01
3 1/4	3	3 1/2	4	4 1/2	5	.70	1.10	1.30	1.60	1.80	2.00	2.20	2.40	2.60	2.80	2.60
3 1/2	3	3 1/2	4	4 1/2	5	1.20	1.70	-----	2.10	2.35	2.60	2.85	3.15	3.40	3.60	3.80
3 3/4	3	3 1/2	4	4 1/2	5	1.35	1.87	-----	2.30	2.60	2.90	3.20	3.50	3.80	4.10	4.40
4	4	4 1/2	5	5 1/2	6	1.85	2.60	-----	3.30	3.65	4.05	4.45	4.85	5.25	5.65	5.85
4 1/4	4 1/2	5	5 1/2	6	6 1/2	2.30	3.15	-----	3.75	4.20	4.60	5.00	5.40	5.85	6.25	6.65
4 1/2	4 1/2	5	5 1/2	6	6 1/2	2.80	4.25	-----	4.50	5.00	5.55	6.05	6.60	7.15	7.65	8.15
4 3/4	5	5 1/2	6	6 1/2	7	4.25	-----	4.95	5.65	6.35	7.05	7.75	8.45	9.20	9.90	10.60
5	5	5 1/2	6	6 1/2	8	5.00	-----	5.80	6.65	7.50	8.35	9.25	10.10	10.95	11.85	12.75

BLACK. RIGHT AND LEFT

Length, Inches					Prices		Prices of Extra Long Nipples									
Close	Short	Long			Size	Close or Short	Long	Lengths, Inches								
								4	5	6	7	8	9	10	11	12
3/4	1 1/2	2	2 1/2	3	3 1/2	.05	.08	.09	.11	.13	.16	.18	.20	.23	.25	.27
1	1 1/2	2	2 1/2	3	3 1/2	.05	.08	.09	.11	.13	.16	.18	.20	.23	.25	.27
1 1/4	1 1/2	2	2 1/2	3	3 1/2	.05	.08	.09	.11	.13	.16	.18	.20	.23	.25	.27
1 1/2	2	2 1/2	3	3 1/2	4	.07	.10	.11	.13	.16	.18	.21	.24	.27	.29	.31
1 3/4	2	2 1/2	3	3 1/2	4	.08	.12	.15	.17	.23	.25	.27	.29	.32	.35	.35
2	2 1/2	3	3 1/2	4	4 1/2	.11	.18	.20	.24	.31	.33	.37	.41	.45	.48	.48
2 1/4	2 1/2	3	3 1/2	4	4 1/2	.15	.23	.27	.32	.39	.45	.50	.55	.60	.65	.65
2 1/2	2 1/2	3	3 1/2	4	4 1/2	.18	.27	.34	.39	.48	.52	.60	.67	.72	.80	.80
2 3/4	2 1/2	3	3 1/2	4	4 1/2	.24	.36	.43	.51	.67	.72	.80	.87	.96	1.03	1.03
3	3	3 1/2	4	4 1/2	5	.52	.79	-----	.91	1.20	1.30	1.40	1.55	1.68	1.80	1.80
3 1/4	3	3 1/2	4	4 1/2	5	.65	.96	-----	1.13	1.44	1.60	1.77	1.93	2.10	2.27	2.27
3 1/2	3	3 1/2	4	4 1/2	5	1.00	1.40	-----	1.75	1.95	2.15	2.35	2.55	2.75	2.95	2.95
3 3/4	4	4 1/2	5	5 1/2	6	1.15	1.60	-----	2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.50

Add 60 per cent to above prices for Galvanized Right and Left Nipples.



Long Screw Nipple



Locknut

Long Screw Nipples

WITH COUPLING AND LOCKNUT FACED

Size	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Standard length, inches	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6	7	8
Standard length, black, each	.30	.35	.40	.55	.75	1.00	1.30	1.70	2.70	3.70
Standard length, galvanized, each	.35	.40	.50	.66	1.00	1.25	1.60	2.10	3.10	4.70

Lock Nuts

Size	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Cast iron									.27	.34
Malleable	.02	.03	.04	.05	.07	.09	.11	.18		
Malleable, galvanized	.03	.04	.05	.07	.10	.14	.20	.30		
Size	$\frac{3}{8}$	4	$4\frac{1}{2}$	5	6	7	8	10	12	
Cast iron	.47	.64	.85	.90	1.30	1.70	2.35	3.00	4.00	



Common Flange



Floor Flange

Common Flanges

Size Inches	Price Each	Size Inches	Price Each	Size Inches	Price Each	Size Inches	Price Each
$\frac{3}{4}$ x4	.22	3 x7	.62	5x12	2.20	8x15	4.00
$\frac{3}{4}$ x5	.30	3 x7 $\frac{1}{2}$	.75	5x12 $\frac{1}{2}$	2.20	8x16	5.00
1 x5	.30	3 x8	.90	6x10	1.50	9x15	4.00
1 x6	.42	3 x9	1.15	6x11	1.75	9x16	5.00
$1\frac{1}{4}$ x4 $\frac{1}{2}$	.25	$3\frac{1}{2}$ x8	.90	6x12	2.20	9x17	5.75
$1\frac{1}{4}$ x5	.30	$3\frac{1}{2}$ x8 $\frac{1}{2}$	1.00	6x12 $\frac{1}{2}$	2.20	10x16	5.00
$1\frac{1}{4}$ x6	.40	$3\frac{1}{2}$ x9	1.15	6x13	2.80	10x17	5.75
$1\frac{1}{4}$ x5	.30	$3\frac{1}{2}$ x10	1.50	6x13 $\frac{1}{2}$	2.80	10x18	7.00
$1\frac{1}{4}$ x6	.40	4 x8	.90	6x14	3.25	10x19	7.50
2 x6	.42	4 x8 $\frac{1}{2}$	1.00	7x12	2.20	12x18	7.00
2 x6 $\frac{1}{2}$	.50	4 x9	1.15	7x12 $\frac{1}{2}$	2.20	12x19	7.50
2 x7	.62	4 x10	1.50	7x13	2.80	12x20	8.50
2 x8	.90	$4\frac{1}{2}$ x9	1.15	7x13 $\frac{1}{2}$	2.80	14x20	8.50
$2\frac{1}{2}$ x6	.42	$4\frac{1}{2}$ x9 $\frac{1}{2}$	1.25	7x14	3.25	14x21	9.50
$2\frac{1}{2}$ x6 $\frac{1}{2}$	.50	$4\frac{1}{2}$ x10	1.50	7x15	4.00	15x21	9.50
$2\frac{1}{2}$ x7	.62	$4\frac{1}{2}$ x11	1.75	8x13	2.80	15x22 $\frac{1}{2}$	14.00
$2\frac{1}{2}$ x8	.90	5 x10	1.50	8x13 $\frac{1}{2}$	2.80	16x23 $\frac{1}{2}$	18.00
3 x6 $\frac{1}{2}$	.50	5 x11	1.75	8x14	3.25		

Floor Flanges

Size Inches	Price Each	Size Inches	Price Each	Size Inches	Price Each	Size Inches	Price Each
$\frac{3}{4}$ x3	.10	$\frac{3}{4}$ x3 $\frac{1}{2}$	.15	$1\frac{1}{4}$ x4	.16	2x5 $\frac{1}{2}$	.35
$\frac{3}{4}$ x3 $\frac{1}{2}$	.15	1 x4	.16	$1\frac{1}{4}$ x4 $\frac{1}{2}$	.22		

All Floor Flanges are drilled for screws.



Return Bend, Close



Return Bend, Open



Y Branch

Return Bends

Size	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	4
Cast iron, close, R. H.	.18	.20	.22	.28	.40	.57	1.20	1.70	5.00
Cast iron, close, R. and L.	.21	.23	.26	.33	.46	.66	1.40	1.95	5.25
Cast iron, open, R. H.	.26	.30	.30	.40	.55	.80	1.85	2.20	6.50
Cast iron, open, R. and L.	.30	.35	.46	.64	.92	1.55	2.50	-----	-----
Malleable, close, R. H.	.18	.25	.35	.50	.75	1.00	-----	-----	-----
Malleable, close, R. H., galvanized	.25	.35	.55	.75	1.15	1.65	-----	-----	-----
Malleable, close, R. and L.	.23	.30	.45	.60	.90	1.25	-----	-----	-----
Malleable, open, R. H.	.20	.30	.50	.65	.85	1.25	2.00	3.00	-----
Malleable, open, R. H., galvanized	.28	.45	.70	.90	1.25	2.00	3.50	5.00	-----
Malleable, open, R. and L.	.25	.38	.60	.80	1.05	1.55	2.50	3.75	-----

Y Branches

Size	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$
Cast iron	.20	.28	.34	.54	.66	.94	1.66	2.50	3.50
Malleable	.40	.50	.60	.80	1.00	1.70	2.00	4.00	-----

Size	4	4 $\frac{1}{2}$	5	6	7	8	10	12
Cast iron	4.00	5.90	7.00	9.20	15.60	22.50	45.00	67.00



Jefferson



Malleable



Flange

Unions

Size	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3
Cast iron, flange	.40	.46	.52	.64	.78	1.00	1.25	-----
Malleable	.18	.20	.22	.27	.33	.46	.58	1.55
Malleable, galvanized	.27	.30	.33	.40	.50	.70	.90	1.15
Dart Union	.30	.40	.50	.60	.80	1.20	1.60	2.00
Dart Union, galvanized	.45	.60	.75	.90	1.20	1.80	2.40	3.00
Jefferson Union	.30	.40	.50	.60	.80	1.20	1.60	2.00
Jefferson Union, galvanized	.45	.60	.75	.90	1.20	1.80	2.40	3.00

Size	3	3 $\frac{1}{2}$	4	4 $\frac{1}{2}$	5	6	7	8	10	12
Cast iron, flange	1.50	1.80	2.10	2.70	3.15	3.95	5.50	7.00	11.50	16.00
Malleable	2.10	3.65	4.35	-----	-----	-----	-----	-----	-----	-----
Malleable, galvanized	3.15	5.50	6.50	-----	-----	-----	-----	-----	-----	-----

The Dart union has bronze seats and ball bearing ground joints.

The Jefferson union has a bronze seat and malleable iron ball shoulder. The seat is ground.

Run Open



Run Open

No. 1 For Circulation

Inlet
Open

Closed



Closed

Outlet Open

Inlet Open

No. 2 For Circulation

No. 3 For Box Coils

Branch Tees

Number of Branches	1" Branch Tees			1½" Branch Tees			1½" Branch Tees			2" Branch Tees		
	2½" Center to Center			3" Center to Center			3½" Center to Center			4½" Center to Center		
	1" or 1½" Run	1½" Run	2" Run	1½" or 1½" Run	2" Run	2½" Run	1½" or 2" Run	2½" Run	3" Run	2" Run	2½" or 3" Run	3½" Run
	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run
2	.90	1.00	1.15									
3	1.05	1.15	1.35	1.65	1.90	2.40	2.70	3.45	3.80	5.25	5.75	6.25
4	1.15	1.30	1.60	2.00	2.40	2.85	3.35	4.15	4.60	6.40	7.00	7.75
5	1.35	1.45	1.85	2.40	2.90	3.55	4.00	5.00	5.50	7.65	8.50	9.25
6	1.60	1.75	2.10	2.80	3.30	3.95	4.65	5.75	6.25	8.80	9.75	10.75
7	1.90	2.20	2.45	3.20	3.90	4.20	5.25	6.50	7.25	10.60	11.75	13.00
8	2.20	2.45	2.75	3.60	4.50	4.95	5.85	7.00	7.75	11.50	12.75	14.00
9	2.65	2.90	3.40	4.30	5.25	6.15	6.50	8.25	9.00	12.25	13.50	15.00
10		3.80	4.00	4.80	5.85	6.85	7.60	9.25	10.00	13.50	15.00	16.50
11		4.50	4.80	5.00	6.25	7.25	8.00	9.75	10.75			
12		4.75	5.10	5.25	6.50	7.65	8.50	10.50	11.50			
13		5.50	6.00	6.00	7.00	8.25						
14		7.00	7.25	6.75	7.75	9.00						
15		7.50	7.75	7.50	8.50	9.75						
16		8.00	8.25	8.50	9.50	10.75						



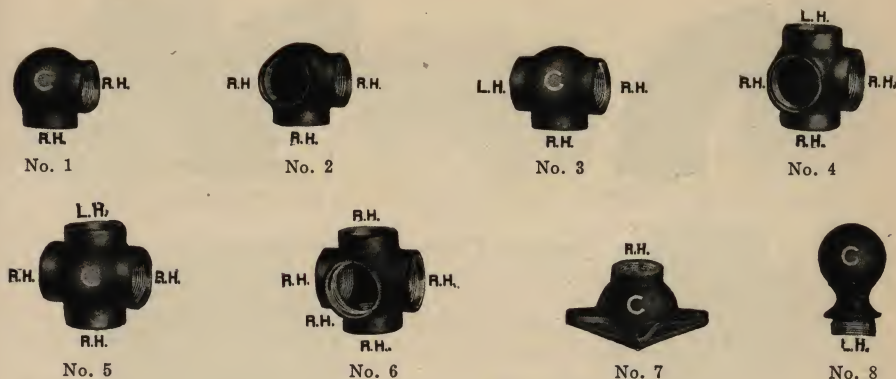
Expansion Pipe Hangers

Size	¾	1	1½	1½	2	2½	3	3½	4	4½	5	6	7	8
Complete, except pipe	.17	.18	.19	.25	.29	.36	.44	.55	.63	.90	1.12	1.35	1.80	2.25
Size pipe tapped for	¾	1	1½	1½	2	2½	3	3½	4	4½	5	6	7	8



Hook Plates

Number of hooks	1	2	3	4	5	6
For 1 inch pipe, 2½ inches between centers	.09	.18	.23	.26	.32	.38
For 1½ inch pipe, 3 inches between centers	.10	.21	.27	.32	.41	.52
For 1½ inch pipe, 3½ inches between centers	.15	.28	.43	.58	.72	.88
For 2 inch pipe, 4½ inches between centers	.22	.43	.65	.90	1.15	1.35



Malleable Iron Railing Fittings

Size	$\frac{3}{4}$	1	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$
No. 1, Elbow	.18	.20	.35	.45	.72
No. 2, Elbow, Side Outlet	.23	.25	.40	.50	.80
No. 3, Tee	.23	.25	.40	.50	.75
No. 4, Tee, Side Outlet	.33	.35	.45	.55	.90
No. 5, Cross	.33	.35	.45	.55	1.00
No. 6, Cross, Side Outlet	.38	.40	.50	.65	1.35
No. 7, Floor Flange, Square	.18	.20	.40	.50	.90
No. 8, Ball Ornament	.18	.20	.25	.35	.90

Railing Fittings will be furnished tapped, as shown in cuts, or Right Hand on all openings when so specified, at regular price. Tapped otherwise will be charged at 15 per cent additional net.

ADD 50 PER CENT TO ABOVE PRICES FOR GALVANIZED RAILING FITTINGS.

Finished Brass Fittings

IRON PIPE SIZE

Size	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4
Elbows	.24	.34	.42	.56	.70	1.00	1.70	2.20	3.00	7.00	9.00	14.00
Elbows, Reducing	.44	.52	.70	.90	1.25	2.20	2.80	3.80	8.80	11.30	17.50	20.00
Elbows, 45°	.35	.42	.50	.68	.85	1.25	2.10	2.75	3.75	8.75	11.00	14.00
Elbows, Street	.40	.50	.56	.83	1.10	1.50	2.65	3.60	4.75	-----	-----	-----
Elbows, Drop Female	.40	.60	.80	1.20	1.70	2.40	3.80	5.00	-----	-----	-----	-----
Elbows, Side Outlet	.30	.40	.60	.80	1.00	1.50	2.00	2.60	3.50	8.00	11.00	18.00
Tees	.30	.40	.60	.80	1.00	1.50	2.00	2.60	3.50	8.00	11.00	18.00
Tees, Reducing	.50	.70	.90	1.25	1.90	2.50	3.30	4.40	10.00	13.80	22.50	32.50
Tees, Drop Female	.70	.90	1.40	2.10	-----	-----	-----	-----	-----	-----	-----	-----
Tees, Four-Way	.40	.60	1.00	1.40	2.00	2.70	3.60	-----	-----	-----	-----	-----
Crosses	.40	.60	.80	1.00	1.20	1.60	3.00	4.00	7.00	10.00	14.00	20.00
Crosses, Reducing	.75	1.00	1.30	1.50	2.00	3.80	5.00	8.80	12.50	17.50	25.00	36.00
Bushings	.20	.24	.28	.42	.76	1.00	1.35	2.00	3.00	5.00	7.00	9.00
Plugs	.18	.20	.24	.30	.40	.56	.80	1.00	1.80	2.50	4.00	6.00
Plugs, Solid	.60	.80	1.10	1.60	2.00	3.60	7.00	12.00	-----	-----	-----	-----
Plugs, Countersunk	.30	.40	.60	.80	1.10	-----	-----	-----	-----	-----	-----	-----
Caps	.30	.40	.60	.80	.90	1.20	1.60	2.20	4.00	6.00	10.00	12.00
Locknuts	.20	.20	.24	.30	.40	.60	.90	1.40	1.90	3.00	5.50	-----
Reducers	.32	.44	.64	.90	1.30	1.80	2.25	3.70	6.00	9.00	-----	-----
Couplings	.20	.28	.32	.50	.75	1.00	1.20	1.80	2.70	4.80	7.00	10.50
Couplings, R. & L.	.31	.36	.55	.82	1.10	1.35	2.00	3.10	-----	-----	-----	-----
Return Bends Close	.112	1.40	2.00	3.40	4.40	6.00	-----	-----	-----	-----	-----	-----
Return Bends Open	.140	1.75	2.50	4.30	5.50	7.50	-----	-----	-----	-----	-----	-----
Y Bends	2.00	2.50	5.10	5.80	9.00	13.00	-----	-----	-----	-----	-----	-----
Unions, Standard	.32	.36	.50	.70	.90	1.25	1.70	2.50	3.60	6.00	7.75	15.00
Unions, Hexagon End	.32	.36	.50	.70	.90	1.25	1.70	2.50	3.60	6.00	7.75	-----
Unions, Octagon	.50	.55	.75	1.00	1.50	2.00	2.50	3.00	4.50	7.50	10.00	-----
Nipples, Short	.21	.21	.38	.45	.57	.75	1.15	1.65	2.20	4.15	6.00	-----
Nipples, Long	.23	.23	.45	.53	.68	.90	1.35	1.90	2.50	4.55	6.75	-----

The above fittings will be made to order, nickel plated, at an advance of 20 per cent.



No. 1, Elbow



No. 2, Double-Branch Elbow

Long Sweep Cast Iron Fittings

FOR STEAM WORKING PRESSURES UP TO 125 POUNDS

NO. 1 ELBOWS

Size	1	1½	1½	2	2½	3	3½	4
Elbows	.32	.40	.55	.80	1.20	2.25	3.25	3.50
Reducing Elbows	.48	.60	.83	1.20	1.80	3.38	4.88	5.25
Size	4½	5	6	7	8	9	10	12
Elbows	5.50	6.50	8.75	13.00	17.00	25.50	30.00	40.00
Reducing Elbows	8.25	9.75	13.13	19.50	26.50	38.25	45.00	60.00

No. 2 DOUBLE BRANCH ELBOWS

Size	1	1½	1½	2	2½	3	3½	4
Elbows	.64	.80	1.10	1.60	2.40	4.50	6.50	7.00
Reducing Elbows	.96	1.20	1.65	2.40	3.60	6.75	9.75	10.50
Size	4½	5	6	7	8	9	10	12
Elbows	11.00	13.00	17.50	26.00	34.00	51.00	60.00	80.00
Reducing Elbows	16.50	19.50	26.25	39.00	51.00	76.50	90.00	120.00



No. 3, Tee



No. 4, Cross

No. 3 TEES

Size	1	1½	1½	2	2½	3	3½	4
Tees	.48	.60	.82	1.20	1.80	3.40	4.90	5.25
Reducing Tees	.72	.90	1.23	1.80	2.70	5.10	7.35	7.88
Size	4½	5	6	7	8	9	10	12
Tees	8.25	9.75	13.25	19.50	25.50	38.00	45.00	60.00
Reducing Tees	12.38	14.63	19.88	29.25	38.25	57.00	67.50	90.00

No. 4 CROSSES

Size	1	1½	1½	2	2½	3	3½	4
Crosses	.85	1.10	1.50	2.15	3.20	6.00	8.75	9.50
Reducing Crosses	1.65	2.25	3.23	4.80	9.00	13.13	14.25	
Size	5	6	7	8	9	10	12	
Crosses	17.50	24.00	35.00	45.00	68.00	80.00	107.00	
Reducing Crosses	26.25	36.00	52.50	67.50	102.00	120.00	160.50	



Elbow



Flange Union



45° Elbow



Tee



Cross

Extra Heavy Cast Iron Fittings
FOR STEAM WORKING PRESSURES UP TO 250 POUNDS

Size	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{2}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$
Elbows	each .25	.30	.35	.45	.60	.75	1.25	2.00	2.75
Elbows, 45°	each .85	.40	.44	.55	.70	.90	1.50	2.50	3.50
Tees	each .40	.45	.55	.70	.90	1.15	1.80	3.00	4.25
Tees, Reducing	each		.70	.90	1.15	1.40	2.25	3.75	5.30
Crosses	each		.70	.90	1.20	1.50	2.50	4.00	5.50
Size	4	$4\frac{1}{2}$	5	6	7	8	10	12	
Elbows	each 8.50	4.25	5.50	8.00	12.00	17.00	28.00	40.00	
Elbows, 45°	each 4.50	5.50	6.75	9.75	14.50	21.00	34.00	48.00	
Tees	each 5.50	6.75	8.25	12.00	18.00	25.00	42.00	60.00	
Tees, Reducing	each 6.85	8.50	10.25	15.00	22.50	31.00	52.00	75.00	
Crosses	each 7.00	8.50	11.00	16.00	24.00	34.00	56.00	80.00	

Extra Heavy Flange Unions
FACED. NO GASKETS

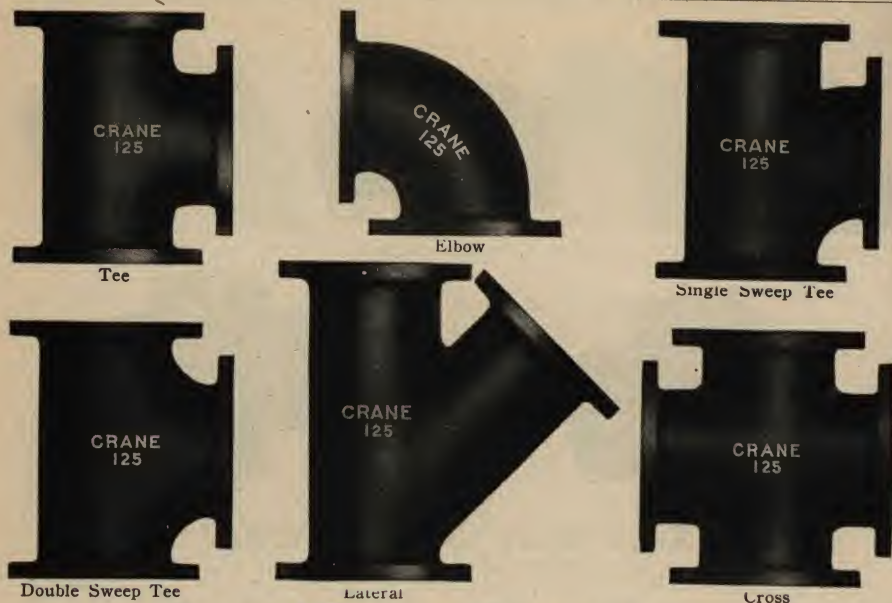
Size	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{2}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$
Price	each .60	.70	.80	1.00	1.15	1.50	1.90	2.25	2.70
Diameter of Flanges	inches 3	$3\frac{1}{2}$	$3\frac{3}{4}$	$4\frac{1}{2}$	$4\frac{3}{4}$	$5\frac{1}{2}$	6	$6\frac{3}{4}$	$7\frac{1}{2}$
Number of Bolts	3	4	4	4	4	5	5	6	6
Size	4	$4\frac{1}{2}$	5	6	7	8	9	10	12
Price	each 3.15	4.00	4.75	6.00	8.25	10.50	15.00	17.25	24.00
Diameter of Flanges	inches 8	$8\frac{1}{2}$	$9\frac{1}{2}$	$10\frac{1}{2}$	12	$13\frac{1}{2}$	$14\frac{1}{2}$	$15\frac{1}{2}$	18
Number of Bolts	7	8	8	9	10	10	12	12	14

Standard Cast Iron Flanged Long Radius Elbows
FOR STEAM WORKING PRESSURES UP TO 125 POUNDS



Size	Center to Face Inches	Radius Inches	Diam. of Flanges Inches	Price, Each	
				Faced	Faced and Drilled
4	9	$7\frac{3}{4}$	9	14.50	18.50
$4\frac{1}{2}$	$9\frac{1}{2}$	$7\frac{3}{4}$	$9\frac{1}{2}$	18.00	22.00
5	$10\frac{1}{2}$	$8\frac{3}{4}$	10	19.50	23.50
6	$11\frac{1}{2}$	$9\frac{1}{2}$	11	24.00	28.00
7	$12\frac{3}{4}$	$10\frac{1}{2}$	$12\frac{1}{2}$	32.00	39.50
8	14	12	$13\frac{1}{2}$	40.00	47.50
9	$15\frac{1}{2}$	13	15	52.00	60.00
10	$16\frac{1}{2}$	$14\frac{1}{2}$	16	64.00	72.00
12	19	$16\frac{1}{2}$	19	88.00	100.00
14	$21\frac{1}{2}$	$18\frac{3}{4}$	21	116.00	130.00
15	$22\frac{3}{4}$	20	$22\frac{1}{2}$	144.00	160.00
16	24	$21\frac{1}{2}$	$23\frac{1}{2}$	168.00	186.00

Furnished faced only, unless otherwise ordered.
Dimensions and templates for drilling, page 274.



Standard Cast Iron Flanged Fittings

FOR STEAM WORKING PRESSURES UP TO 125 POUNDS

Size	Elbows		45° Elbows		Tees		Reducing Tees		Single Sweep Tees		Single Sweep Reducing Tees	
	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled
1½	4.75	5.75	5.25	6.25	7.00	8.50	8.00	9.50	8.00	9.50	9.50	11.25
1¾	4.75	5.75	5.25	6.25	7.00	8.50	8.00	9.50	8.25	10.00	10.00	12.75
2	4.75	5.75	5.25	6.25	7.00	8.50	8.00	9.50	8.25	10.00	11.00	12.75
2½	5.00	6.25	5.50	6.75	7.25	9.00	8.25	10.00	11.00	12.75	12.50	14.25
3	5.75	7.00	6.25	7.50	8.25	10.00	9.50	11.25	9.50	11.25	11.00	12.75
3½	6.50	7.75	7.25	8.50	9.50	11.25	11.00	12.75	11.00	12.75	12.50	14.25
4	7.25	9.25	8.00	10.00	10.50	13.50	12.00	15.00	12.00	15.00	13.75	16.75
4½	9.00	11.00	10.00	12.00	13.00	16.00	15.00	18.00	15.00	18.00	17.25	20.25
5	9.75	11.75	10.75	12.75	14.25	17.25	16.25	19.25	16.25	19.25	18.75	21.75
6	12.00	14.00	13.00	15.00	17.50	20.50	20.00	23.00	20.00	23.00	23.00	26.00
7	16.00	19.75	16.00	19.75	23.00	28.75	26.50	32.00	26.50	32.00	30.00	35.50
8	20.00	23.75	20.00	23.75	29.00	34.75	33.50	39.00	33.50	39.00	38.50	44.00
9	26.00	30.00	26.00	30.00	38.00	44.00	43.50	50.00	43.50	50.00	50.00	56.50
10	32.00	36.00	32.00	36.00	46.50	52.50	53.50	60.00	53.50	60.00	61.50	68.00
12	44.00	50.00	44.00	50.00	64.00	73.00	74.00	83.00	74.00	83.00	85.00	94.00
14	58.00	65.00	58.00	65.00	84.00	95.00	96.00	107.00	96.00	107.00	110.00	121.00
16	84.00	93.00	84.00	93.00	122.00	135.00	140.00	153.00	140.00	153.00	160.00	173.00

Size	Double Sweep Tees		Double Sweep Reducing Tees		Crosses		Reducing Crosses		Laterals		Reducing Laterals	
	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled
2	8.00	9.50	-----	-----	9.50	11.50	11.00	13.00	9.50	11.50	-----	-----
2½	8.25	10.00	9.50	11.25	10.00	12.50	11.50	14.00	10.00	12.50	-----	-----
3	9.50	11.25	11.00	12.75	11.50	14.00	13.25	15.75	11.50	14.00	-----	-----
3½	11.00	12.75	12.50	14.25	13.00	15.50	15.00	17.50	13.00	15.50	-----	-----
4	12.00	15.00	13.75	16.75	14.50	18.50	16.75	20.75	14.50	18.50	16.75	20.75
4½	15.00	18.00	17.25	20.25	18.00	22.00	20.75	25.00	18.00	22.00	20.75	25.00
5	16.25	19.25	18.75	21.75	19.50	23.50	22.50	26.50	19.50	23.50	22.50	26.50
6	20.00	23.00	23.00	26.00	24.00	28.00	27.50	31.50	24.00	28.00	27.50	31.50
7	26.50	32.00	30.00	35.50	32.00	39.50	37.00	45.00	32.00	39.50	37.00	45.00
8	33.50	39.00	38.50	44.00	40.00	47.50	46.00	53.50	40.00	47.50	46.00	53.50
9	43.50	50.00	50.00	56.50	52.00	60.00	60.00	68.00	52.00	60.00	60.00	68.00
10	53.50	60.00	61.50	68.00	64.00	72.00	74.00	82.00	64.00	72.00	74.00	82.00
12	74.00	83.00	85.00	94.00	88.00	100.00	100.00	112.00	88.00	100.00	100.00	112.00
14	96.00	107.00	110.00	121.00	116.00	130.00	132.00	146.00	116.00	130.00	132.00	146.00
16	140.00	153.00	160.00	173.00	168.00	186.00	193.00	210.00	168.00	186.00	193.00	210.00

Furnished faced only, unless otherwise ordered.
Dimensions and templates for drilling, page 274.



Standard Cast Iron Flanged Fittings

FOR STEAM WORKING PRESSURES UP TO 125 POUNDS

REDUCING TAPER ELBOWS

Size	Faced	Faced and Drilled	Size	Faced	Faced and Drilled	Size	Faced	Faced and Drilled	Size	Faced	Faced and Drilled
3 x 1½	11.50	14.00	5x4	19.50	23.50	8x5	40.00	47.50	12x10	88.00	100.00
3 x 2	11.50	14.00	6x2½	24.00	28.00	8x6	40.00	47.50	14x10	116.00	130.00
3 x 2½	11.50	14.00	6x3	24.00	28.00	9x8	52.00	60.00	14x12	116.00	130.00
3½x2½	13.00	15.50	6x3½	24.00	28.00	10x5	64.00	72.00	15x10	144.00	160.00
3½x3	13.00	15.50	6x4	24.00	28.00	10x6	64.00	72.00	15x12	144.00	160.00
4 x 2	14.50	18.50	6x5	24.00	28.00	10x8	64.00	72.00	16x12	168.00	186.00
4 x 2½	14.50	18.50	7x5	32.00	39.50	10x9	64.00	72.00	16x14	168.00	186.00
4 x 3	14.50	18.50	7x6	32.00	39.50	12x6	88.00	100.00	16x15	168.00	186.00
5 x 2½	19.50	23.50	8x3½	40.00	47.50	12x7	88.00	100.00			
5 x 3	19.50	23.50	8x4	40.00	47.50	12x8	88.00	100.00			

TAPER REDUCERS

Information regarding sizes and prices will be furnished on application.

COMPANION FLANGES

Size	Flanges		Blind Flanges		Size	Flanges		Blind Flanges	
	Faced	Faced and Drilled	Faced	Faced and Drilled		Faced	Faced and Drilled	Faced	Faced and Drilled
1 x 4	1.00	1.25			8x13½	5.00	6.50	5.75	7.25
1½x 4½	1.05	1.35			9x15	6.75	8.25	7.75	9.25
1½x 5	1.10	1.40			10x16	7.75	9.25	9.00	10.60
2 x 6	1.20	1.50	1.40	1.70	12x19	10.50	12.50	14.00	16.00
2½x 7	1.40	2.00	1.60	2.20	14x21	13.75	16.00	17.50	19.75
3 x 7½	1.60	2.25	1.85	2.50	15x21	18.00	21.00	22.50	25.50
3½x 8½	1.80	2.50	2.10	2.80	15x22½	18.00	21.00	22.50	25.50
4 x 9	2.15	3.00	2.50	3.35	16x23½	22.50	26.00	28.00	31.50
4½x 9½	2.50	3.35	2.90	3.75	18x25	27.50	31.00	33.00	36.50
5 x 10	2.80	3.65	3.25	4.10	20x27½	30.00	34.00	36.00	40.00
6 x 11	3.20	4.00	3.70	4.50	22x29½	33.75	39.00	41.00	46.00
7 x 12½	4.35	5.75	5.00	6.40	24x32	41.00	46.00	50.00	55.00

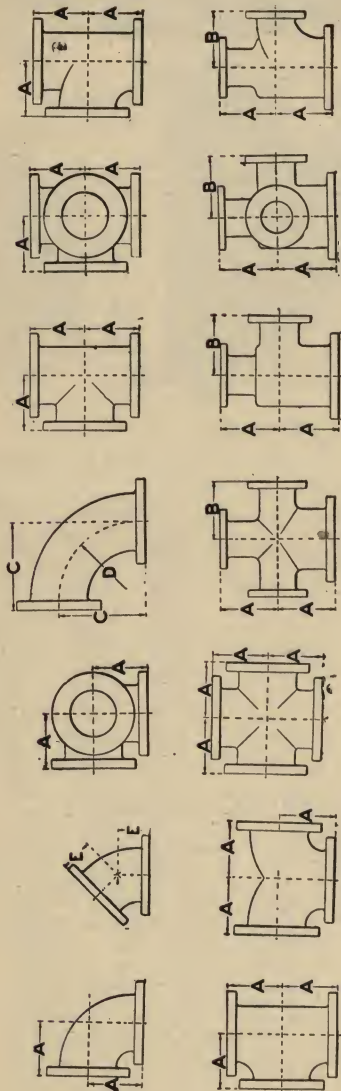
REDUCING COMPANION FLANGES

Size	Faced	Faced and Drilled	Size	Faced	Faced and Drilled	Size	Faced	Faced and Drilled	Size	Faced	Faced and Drilled
1½x 7	2.10	3.00	4 x 10	4.25	5.50	6 x 15	10.00	12.25	12x21	20.00	24.00
2 x 7	2.10	3.00	4½x 10	4.25	5.50	7 x 15	10.00	12.25	8x22½	27.00	31.50
1½x 7½	2.40	3.35	2 x 11	4.75	6.00	8 x 15	10.00	12.25	10x22½	27.00	31.50
2 x 7½	2.40	3.35	2½x 11	4.75	6.00	2½x 16	11.50	14.00	12x22½	27.00	31.50
2½x 7½	2.40	3.35	3 x 11	4.75	6.00	3 x 16	11.50	14.00	14x22½	27.00	31.50
2 x 8½	2.70	3.75	3½x 11	4.75	6.00	3½x 16	11.50	14.00	10x23½	34.00	39.00
2½x 8½	2.70	3.75	4 x 11	4.75	6.00	4 x 16	11.50	14.00	12x23½	34.00	39.00
3 x 8½	2.70	3.75	4½x 11	4.75	6.00	5 x 16	11.50	14.00	14x23½	34.00	39.00
2 x 9	3.25	4.50	5 x 11	4.75	6.00	6 x 16	11.50	14.00	15x23½	34.00	39.00
2½x 9	3.25	4.50	4 x 12½	6.50	8.50	7 x 16	11.50	14.00	12x25	41.00	46.00
3 x 9	3.25	4.50	4½x 12½	6.50	8.50	8 x 16	11.50	14.00	14x25	41.00	46.00
3½x 9	3.25	4.50	5 x 12½	6.50	8.50	9 x 16	11.50	14.00	15x25	41.00	46.00
2½x 9½	3.75	5.00	6 x 12½	6.50	8.50	6 x 19	15.75	18.75	16x25	41.00	46.00
3 x 9½	3.75	5.00	2 x 13½	7.50	9.75	7 x 19	15.75	18.75	14x27½	45.00	51.00
3½x 9½	3.75	5.00	2½x 13½	7.50	9.75	8 x 19	15.75	18.75	15x27½	45.00	51.00
4 x 9½	3.75	5.00	3 x 13½	7.50	9.75	9 x 19	15.75	18.75	16x27½	45.00	51.00
2 x 10	4.25	5.50	4 x 13½	7.50	9.75	10 x 19	15.75	18.75	18x27½	45.00	51.00
2½x 10	4.25	5.50	5 x 13½	7.50	9.75	8 x 21	20.00	24.00	15x29½	50.00	58.50
3 x 10	4.25	5.50	6 x 13½	7.50	9.75	9 x 21	20.00	24.00	16x29½	50.00	58.50
3½x 10	4.25	5.50	7 x 13½	7.50	9.75	10 x 21	20.00	24.00	18x29½	50.00	58.50

Furnished faced only, unless otherwise ordered.
Dimensions and templates for drilling, page 274.

Standard Cast Iron Flanged Fittings

FOR STEAM WORKING PRESSURES UP TO 125 POUNDS



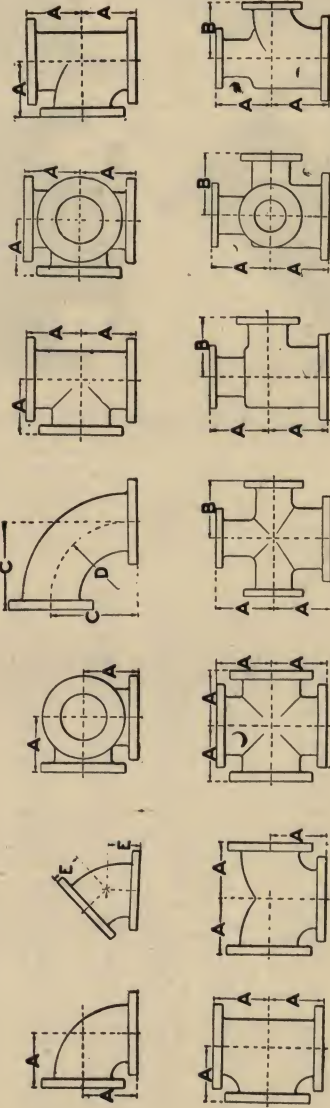
GENERAL DIMENSIONS AND TEMPLATES FOR DRILLING

Size	1 1/2	2	3	4	5	6	7	8	9	10	12	14	15	16
AA—Face to Face	7 1/2	9	10 1/2	13	15	16 1/2	17 1/2	18	20	22	24	28	29	30
A—Center to Face	3 1/2	4 1/2	5 1/2	6 1/2	7 1/2	8 1/2	9 1/2	9	10	11	12	14	14 1/2	15
B—Center to Face	3 1/2	4 1/2	5 1/2	6 1/2	7 1/2	8 1/2	9 1/2	9	10	11	12	14	14 1/2	15
C—Center to Face, Long Radius Elbows	3 1/2	4 1/2	5 1/2	6 1/2	7 1/2	8 1/2	9 1/2	9	10	11	12	14	14 1/2	15
D—Radius, Long Radius Elbows	3 1/2	4 1/2	5 1/2	6 1/2	7 1/2	8 1/2	9 1/2	9	10	11	12	14	14 1/2	15
E—Center to Face of 45° Elbows	2 1/2	3 1/2	4 1/2	5 1/2	6 1/2	7 1/2	8 1/2	8	9	10	11	12	13	14
F—Center to Face of 45° Elbows	2 1/2	3 1/2	4 1/2	5 1/2	6 1/2	7 1/2	8 1/2	8	9	10	11	12	13	14
Thickness of Flange	1 1/2	2 1/2	3 1/2	4 1/2	5 1/2	6 1/2	7 1/2	7 1/2	8 1/2	9 1/2	10 1/2	11 1/2	12 1/2	13 1/2
Diameter of Bolt Circle	4 1/2	5 1/2	6 1/2	7 1/2	8 1/2	9 1/2	10 1/2	11 1/2	12 1/2	13 1/2	14 1/2	15 1/2	16 1/2	17 1/2
Number of Bolts	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Length of Bolts	1 1/2	2 1/2	3 1/2	4 1/2	5 1/2	6 1/2	7 1/2	7 1/2	8 1/2	9 1/2	10 1/2	11 1/2	12 1/2	13 1/2
Diameter of Bolt Holes	1 1/2	2 1/2	3 1/2	4 1/2	5 1/2	6 1/2	7 1/2	7 1/2	8 1/2	9 1/2	10 1/2	11 1/2	12 1/2	13 1/2

Flanged fittings are drilled in multiples of four, so that they may be made to face in any quarter and bolt holes straddle center line. Dimensions are regulated by the size of outlet.

Extra Heavy Cast Iron Flanged Fittings

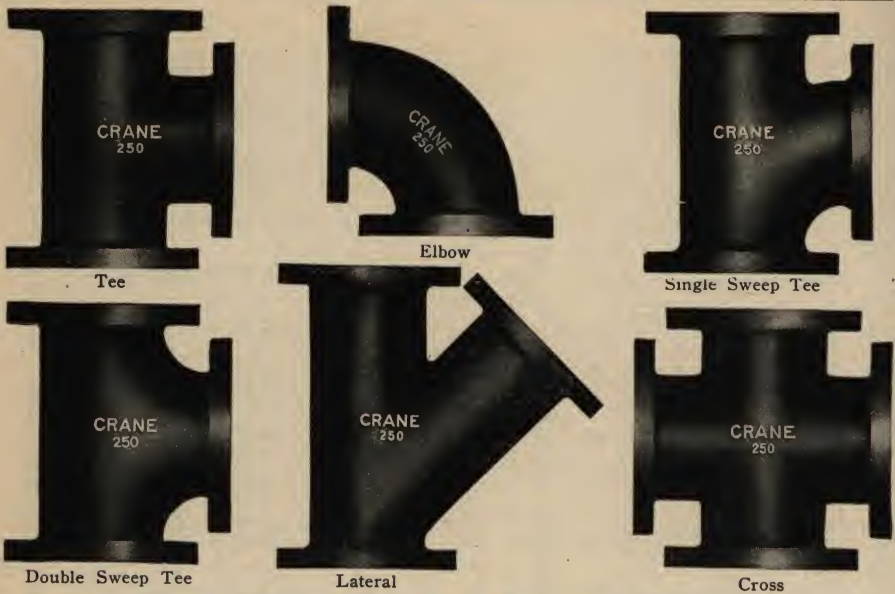
FOR STEAM WORKING PRESSURES UP TO 250 POUNDS



GENERAL DIMENSIONS AND TEMPLATES FOR DRILLING

Size	1 1/2	2	3	4	5	6	7	8	9	10	12	14	15	16
AA—Face to Face	8 1/2	10	11	12	13	14	15	16	17	18	20	21	23	25
A—Center to Face	4 1/4	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	14 1/4	15 1/4	16 1/4	17 1/4
B—Center to Face	4 1/4	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	14 1/4	15 1/4	16 1/4	17 1/4
C—Center to Face of Long Radius Elbows	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	14 1/4	15 1/4	16 1/4	17 1/4	18 1/4
D—Radius of Long Radius Elbows	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	14 1/4	15 1/4	16 1/4	17 1/4	18 1/4
E—Center to Face of 45° Elbows	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	14 1/4	15 1/4	16 1/4	17 1/4	18 1/4
Thickness of Flange	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Diameter of Flange	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Number of Bolts	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Size of Bolts	1/2	3/4	7/8	1	1 1/8	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	2 3/4	3	3 1/4
Length of Bolts	2 1/2	3	3 1/2	4	4 1/2	5	5 1/2	6	6 1/2	7	7 1/2	8	8 1/2	9
Bolt Circle	5 1/4	6 1/4	7 1/4	8 1/4	9 1/4	10 1/4	11 1/4	12 1/4	13 1/4	14 1/4	15 1/4	16 1/4	17 1/4	18 1/4
Diameter of Bolt Holes	5/8	3/4	7/8	1	1 1/8	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	2 3/4	3	3 1/4

Flanged fittings are drilled in multiples of four, so that they may be made to face in any quarter and bolt holes straddle center line. Dimensions are regulated by the size of outlet.



Extra Heavy Cast Iron Flanged Fittings
FOR STEAM WORKING PRESSURES UP TO 250 POUNDS

Size	Elbows		45° Elbows		Tees		Reducing Tees		Single Sweep Tees		Single Sweep Reducing Tees	
	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled
1½	4.75	5.75	5.25	6.25	7.00	8.50						
1¾	4.75	5.75	5.25	6.25	7.00	8.50						
2	4.75	5.75	5.25	6.25	7.00	8.50	8.00	9.50	8.00	9.50		
2½	5.00	6.25	5.50	6.75	7.25	9.00	8.25	10.00	8.25	10.00	9.50	11.25
3	5.75	7.00	6.25	7.50	8.25	10.00	9.50	11.25	9.50	11.25	11.00	12.75
3½	6.50	7.75	7.25	8.50	9.50	11.25	11.00	12.75	11.00	12.75	12.50	14.25
4	7.25	9.25	8.00	10.00	10.50	13.50	12.00	15.00	12.00	15.00	13.75	16.75
4½	9.00	11.00	10.00	12.00	13.00	16.00	15.00	18.00	15.00	18.00	17.25	20.25
5	9.75	11.75	10.75	12.75	14.25	17.25	16.25	19.25	16.25	19.25	18.75	21.75
6	12.00	14.00	13.00	15.00	17.50	20.50	20.00	23.00	20.00	23.00	23.00	26.00
7	16.00	19.75	16.00	19.75	23.00	28.75	26.50	32.00	26.50	32.00	30.00	35.50
8	20.00	23.75	20.00	23.75	29.00	34.75	33.50	39.00	33.50	39.00	38.50	44.00
9	26.00	30.00	26.00	30.00	38.00	44.00	43.50	50.00	43.50	50.00	50.00	56.50
10	32.00	36.00	32.00	36.00	46.50	52.50	53.50	60.00	53.50	60.00	61.50	68.00
12	44.00	50.00	44.00	50.00	64.00	73.00	74.00	83.00	74.00	83.00	86.00	94.00
14	58.00	65.00	58.00	65.00	84.00	95.00	96.00	107.00	96.00	107.00	110.00	121.00
15	72.00	80.00	72.00	80.00	105.00	117.00	120.00	132.00	120.00	132.00	138.00	150.00
16	84.00	93.00	84.00	93.00	122.00	135.00	140.00	153.00	140.00	153.00	160.00	173.00

Size	Double Sweep Tees		Double Sweep Reducing Tees		Crosses		Reducing Crosses		Laterals		Reducing Laterals	
	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled
2	8.00	9.50			9.50	11.50	11.00	13.00	9.50	11.50		
2½	8.25	10.00	9.50	11.25	10.00	12.50	11.50	14.00	10.00	12.50		
3	9.50	11.25		12.75	11.50	14.00	13.25	15.75	11.50	14.00		
3½	11.00	12.75	12.50	14.25	13.00	15.50	15.00	17.50	13.00	15.50		
4	12.00	15.00	13.75	16.75	14.50	18.50	16.75	20.75	14.50	18.50	16.75	20.75
4½	15.00	18.00	17.25	20.25	18.00	22.00	20.75	25.00	18.00	22.00	20.75	25.00
5	16.25	19.25	18.75	21.75	19.50	23.50	22.50	26.50	19.50	23.50	22.50	26.50
6	20.00	23.00	23.00	26.00	24.00	28.00	27.50	31.50	24.00	28.00	27.50	31.50
7	26.50	32.00	30.00	35.50	32.00	39.50	37.00	45.00	32.00	39.50	37.00	45.00
8	33.50	39.00	38.50	44.00	40.00	47.50	46.00	53.50	40.00	47.50	46.00	53.50
9	43.50	50.00	50.00	56.50	52.00	60.00	60.00	68.00	52.00	60.00	60.00	68.00
10	53.50	60.00	61.50	68.00	64.00	72.00	74.00	82.00	64.00	72.00	74.00	82.00
12	74.00	83.00	85.00	94.00	88.00	100.00	100.00	112.00	88.00	100.00	100.00	112.00
14	96.00	107.00	110.00	121.00	116.00	130.00	132.00	146.00	116.00	130.00	132.00	146.00
15	120.00	132.00	138.00	150.00	144.00	160.00	165.00	180.00	144.00	160.00	165.00	180.00
16	140.00	153.00	160.00	173.00	168.00	186.00	193.00	210.00	168.00	186.00	193.00	210.00

Furnished faced only, unless otherwise ordered.
Dimensions and templates for drilling, page 275.



Extra Heavy Cast Iron Flanged Fittings

FOR STEAM WORKING PRESSURES UP TO 250 POUNDS

REDUCING TAPER ELBOWS

Size	Faced	Faced and Drilled	Size	Faced	Faced and Drilled	Size	Faced	Faced and Drilled	Size	Faced	Faced and Drilled
2 x 1½	9.00	11.50	4x3	14.50	18.50	7x6	32.00	39.50	12x10	88.00	100.00
2½ x 1½	10.00	12.50	5x2½	19.50	23.50	8x4	40.00	47.50	14x10	116.00	130.00
2½ x 2	10.00	12.50	5x3	19.50	23.50	8x5	40.00	47.50	14x12	116.00	130.00
3 x 1½	11.50	14.00	5x4	19.50	23.50	8x6	40.00	47.50	15x10	144.00	160.00
3 x 2	11.50	14.00	6x3	24.00	28.00	8x7	40.00	47.50	15x12	144.00	160.00
3 x 2½	11.50	14.00	6x3½	24.00	28.00	10x5	64.00	72.00	16x10	168.00	186.00
3½ x 2½	13.00	15.50	6x4	24.00	28.00	10x6	64.00	72.00	16x12	168.00	186.00
3½ x 3	13.00	15.50	6x5	24.00	28.00	10x8	64.00	72.00	16x14	168.00	186.00
4 x 2	14.50	18.50	7x4	32.00	39.50	12x7	88.00	100.00			
4 x 2½	14.50	18.50	7x5	32.00	39.50	12x8	88.00	100.00			

TAPER REDUCERS

Information regarding sizes and prices will be furnished on application.

COMPANION FLANGES

Size	Flanges		Blind Flanges		Size	Flanges		Blind Flanges	
	Faced	Faced and Drilled	Faced	Faced and Drilled		Faced	Faced and Drilled	Faced	Faced and Drilled
1 x 4½	1.00	1.25			8x15	5.00	6.50	5.75	7.25
1½ x 5	1.05	1.35			9x16	6.75	8.25	7.75	9.25
1½ x 6	1.10	1.40			10x17½	7.75	9.25	9.00	10.60
2 x 6½	1.20	1.50	1.40	1.70	12x20	10.50	12.50	14.00	16.00
2½ x 7½	1.40	2.00	1.60	2.20	14x22½	13.75	16.00	17.50	19.75
3 x 8½	1.60	2.25	1.85	2.50	15x23½	18.00	21.00	22.50	25.50
3½ x 9	1.80	2.50	2.10	2.80	16x25	22.50	26.00	28.00	31.50
4 x 10	2.15	3.00	2.50	3.35	18x27	27.50	31.00	33.00	36.50
4½ x 10½	2.50	3.35	2.90	3.75	20x29½	30.00	34.00	36.00	40.00
5 x 11	2.80	3.65	3.25	4.10	22x31½	33.75	39.00	41.00	46.00
6 x 12½	3.20	4.00	3.70	4.50	24x34	41.00	46.00	50.00	55.00
7 x 14	4.35	5.75	5.00	6.40					

REDUCING COMPANION FLANGES

Size	Faced	Faced and Drilled	Size	Faced	Faced and Drilled	Size	Faced	Faced and Drilled	Size	Faced	Faced and Drilled
1½ x 7½	2.10	3.00	3½ x 11	4.25	5.50	6x16	10.00	12.25	14x23½	27.00	31.50
2 x 7½	2.10	3.00	4 x 11	4.25	5.50	7x16	10.00	12.25	10x25	34.00	39.00
1½ x 8½	2.40	3.35	4½ x 11	4.25	5.50	8x16	10.00	12.25	12x25	34.00	39.00
2 x 8½	2.40	3.35	2 x 12½	4.75	6.00	5x17½	11.50	14.00	14x25	34.00	39.00
2½ x 8½	2.40	3.35	2½ x 12½	4.75	6.00	6x17½	11.50	14.00	15x25	34.00	39.00
2 x 9	2.70	3.75	3 x 12½	4.75	6.00	7x17½	11.50	14.00	12x27	41.00	46.00
2½ x 9	2.70	3.75	4 x 12½	4.75	6.00	8x17½	11.50	14.00	14x27	41.00	46.00
3 x 9	2.70	3.75	4½ x 12½	4.75	6.00	9x17½	11.50	14.00	15x27	41.00	46.00
2 x 10	3.25	4.50	5 x 12½	4.75	6.00	6x20	15.75	18.75	16x27	41.00	46.00
2½ x 10	3.25	4.50	4½ x 14	6.50	8.50	7x20	15.75	18.75	14x29½	45.00	51.00
3 x 10	3.25	4.50	5 x 14	6.50	8.50	8x20	15.75	18.75	15x29½	45.00	51.00
3½ x 10	3.25	4.50	6 x 14	6.50	8.50	9x20	15.75	18.75	16x29½	45.00	51.00
2 x 10½	3.75	5.00	3 x 15	7.50	9.75	10x20	15.75	18.75	18x29½	45.00	51.00
2½ x 10½	3.75	5.00	3½ x 15	7.50	9.75	8x22½	20.00	24.00	16x31½	50.00	58.50
3 x 10½	3.75	5.00	4 x 15	7.50	9.75	9x22½	20.00	24.00	18x31½	50.00	58.50
3½ x 10½	3.75	5.00	5 x 15	7.50	9.75	10x22½	20.00	24.00	20x31½	50.00	58.50
4 x 10½	3.75	5.00	6 x 15	7.50	9.75	12x22½	20.00	24.00	18x34	61.00	70.00
2 x 11	4.25	5.50	7 x 15	7.50	9.75	8x23½	27.00	31.50	20x34	61.00	70.00
2½ x 11	4.25	5.50	4 x 16	10.00	12.25	10x23½	27.00	31.50			
3 x 11	4.25	5.50	5 x 16	10.00	12.25	12x23½	27.00	31.50			

Furnished faced only, unless otherwise ordered.
Dimensions and templates for drilling, page 275.



Angle Valve



Globe Valve



Cross Valve

Lunkenheimer Regrinding Valves

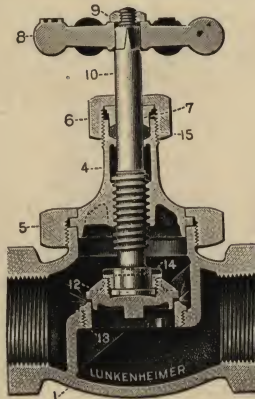
FOR WORKING PRESSURES UP TO 200 POUNDS

Size	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4
Globe or Angle Valves	.70	.70	.85	1.15	1.45	2.00	2.80	3.90	6.20	12.00	16.50	30.00	40.00
Cross Valves	1.00	1.00	1.50	2.00	2.70	3.50	5.10	8.00	16.00	24.00	35.00	50.00	

The Lunkenheimer Valves are heavy "regrinding" valves, of superior quality and workmanship. They are fully warranted in every particular. When worn in the seat they can be made good as new by regrinding.



Angle Valve



Globe Valve



Cross Valve

Lunkenheimer "Renewo" Valves

FOR WORKING PRESSURES UP TO 200 POUNDS

This valve differs from the Lunkenheimer Regrinding Valve only in the construction of disc and seat.

These valves are provided with renewable nickel seats, which can easily be removed when necessary. They will, however, permit of considerable regrinding before it becomes necessary to renew them. It is not necessary to disconnect the valve from the pipe when either regrinding or removing the seat. The discs and all other parts subject to wear can also be renewed when worn.

The material used, with the exception of the seat, is a high-grade bronze composition, such as is required by the U. S. Navy. The seat is made of a hard, close-grained nickel, will withstand considerable hard usage and can be reground quite a number of times.

Size	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3
Globe or Angle Valves	1.10	1.25	1.60	2.20	2.80	4.00	5.50	8.75	15.75	22.00
Cross Valves	1.70	2.00	2.25	2.50	3.25	4.75	6.25	9.50	20.00	27.50



Globe Valve



Angle Valve



Cross Valve

Jenkins Brass Valves

FOR WORKING STEAM PRESSURE OF 150 POUNDS

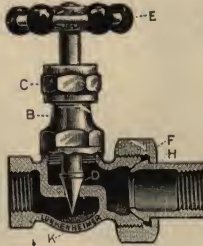
Size	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3
Globe or Angle Valves	1.10	1.10	1.25	1.60	2.20	2.80	4.00	5.50	8.75	15.75	22.00
Cross Valves		1.70	2.00	2.25	2.50	3.25	4.75	6.25	9.50	20.00	27.50
Extra Discs each	.03	.03	.04	.04	.05	.06	.09	.12	.18	.24	.40

Standard Brass Valves

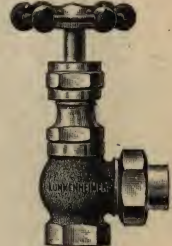
Size	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3
Globe or Angle Valves	.72	.72	.77	1.00	1.26	1.80	2.52	3.50	5.30	10.00	14.40
Cross Valves		1.25	1.25	1.50	2.00	2.50	3.50	5.00	8.00	16.00	24.00



Globe Valve


 Globe Valve
with Union


Angle Valve


 Angle Valve
with Union

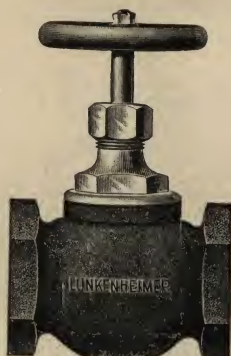
Lunkenheimer Brass Needle Valves

Size	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
Steel Stem, Globe or Angle Valves	.60	.70	.80	1.45	1.85
Steel Stem, Cross Valves	.90	1.20	1.45	2.25	2.80
Steel Stem, Globe or Angle Valves, with Union	.75	.95	1.10	1.75	2.50
Steel Stem, Cross Valves, with Union	1.05	1.55	1.75	2.55	3.45
Brass Stem, Globe or Angle Valves	.65	.75	.85	1.60	2.00
Brass Stem, Cross Valves	.95	1.25	1.50	2.40	3.00
Brass Stem, Globe or Angle Valves, with Union	.80	.95	1.15	1.95	3.10
Brass Stem, Cross Valves, with Union	1.10	1.45	1.75	2.75	4.10
Seat Openings in Valves with Steel Stems	3-64	1-16	3-32	1-8	3-16
Seat Openings in Valves with Brass Stems	1-8	3-16	1-4	5-16	7-16

In ordering, state whether brass or steel stems are wanted.



Angle Valve



Globe Valve



Cross Valve

Lunkenheimer Iron Body Valves

FOR WORKING PRESSURES UP TO 125 POUNDS

BRASS MOUNTED

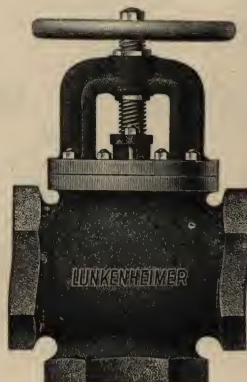
Size.....	1	1½	1½	2	2½	3
Globe or Angle, Screwed.....	2.25	2.75	3.50	5.40	7.35	9.80
Cross Valves, Screwed.....	2.70	3.30	4.20	6.50	9.00	12.50
Globe or Angle, Flanged.....	3.50	4.60	5.70	7.70	10.50	15.20
Cross Valves, Flanged.....	4.25	5.50	6.70	9.70	13.50	19.20



Angle Valve



Globe Valve



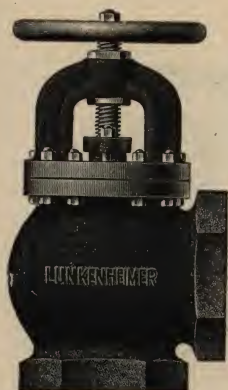
Cross Valve

Lunkenheimer Iron Body Valves

FOR WORKING PRESSURES UP TO 125 POUNDS

MEDIUM PATTERN. OUTSIDE SCREW AND YOKE

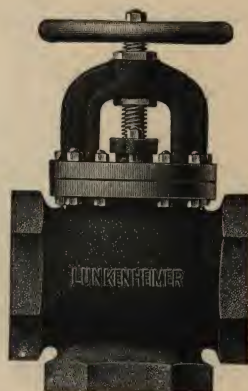
Size.....	2	2½	3	3½	4	4½	5	6	7	8	10	12
Globe or Angle, Screwed.....	8.40	11.00	14.00	18.00	22.00	26.00	35.00	43.00	63.00	82.00	125.00	170.00
Cross Valves, Screwed.....	10.00	14.00	18.00	23.00	27.00	32.00	43.00	53.00	78.00	105.00	175.00	240.00
Globe or Angle, Flanged.....	10.00	12.50	17.00	20.50	25.00	30.00	36.00	47.00	68.00	85.00	130.00	187.00
Cross Valves, Flanged.....	12.50	16.50	22.00	27.00	31.00	38.50	46.00	59.00	85.00	110.00	182.00	265.00



Angle Valve



Globe Valve



Cross Valve

Lunkenheim Extra Heavy Iron Body Valves

FOR WORKING PRESSURES UP TO 250 POUNDS

Outside Screw and Yoke. Special Bronze Composition Stems

SCREWED

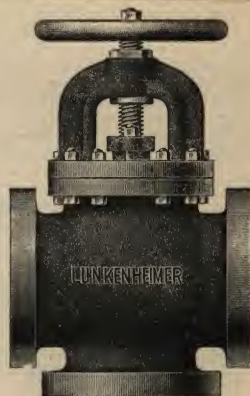
Size.....	2	2½	3	3½	4	4½	5	6	7	8	10	12
Globe or Angle.....	29.00	33.00	37.00	46.00	55.00	62.00	75.00	93.00	130.00	175.00	280.00	375.00
Cross.....	35.00	40.00	45.00	54.00	64.00	72.00	90.00	115.00	155.00	205.00	330.00	450.00



Angle Valve



Globe Valve



Cross Valve

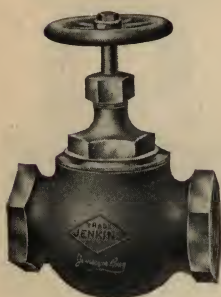
Lunkenheim Extra Heavy Iron Body Valves

FOR WORKING PRESSURES UP TO 250 POUNDS

Outside Screw and Yoke. Special Bronze Composition Stems

FLANGED

Size.....	2	2½	3	3½	4	4½	5	6	7	8	10	12
Globe or Angle.....	31.00	35.00	40.00	51.00	59.00	67.00	78.00	100.00	140.00	185.00	290.00	385.00
Cross.....	38.00	43.00	50.00	61.00	69.00	78.00	93.00	120.00	165.00	215.00	340.00	460.00



Globe, No Yoke



Angle, Yoked and Flanged



Globe, With Yoke

Jenkins Iron Body Valves BRASS MOUNTED

Size	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{2}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Globe or Angle, Screwed	2.80	2.80	3.00	4.00	5.00	7.25	11.00	16.00
Globe or Angle, Flanged	3.80	3.80	4.40	5.40	6.60	8.50	13.00	18.00

OUTSIDE SCREW AND YOKE

Size	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	10	12
Globe or Angle, Screwed	10.00	12.00	16.75	19.50	24.00	32.00	40.00	48.00	80.00	90.00	130.00	185.00
Cross Valves, Screwed	-----	16.00	21.00	26.00	30.00	42.00	45.00	58.00	90.00	100.00	-----	-----
Globe or Angle, Flanged	11.75	14.00	18.50	21.50	26.00	34.00	42.00	50.00	80.00	90.00	130.00	185.00
Cross Valves, Flanged	-----	19.00	24.00	29.00	33.00	45.00	48.00	62.00	90.00	100.00	-----	-----

Discs For Jenkins Valves

Size	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{2}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	10	12
Each	.03	.04	.04	.05	.06	.09	.12	.18	.24	.40	.50	.60	.70	.80	1.00	1.20	1.40	2.25	2.50

Standard Iron Body Valves BRASS MOUNTED

Size	1	$1\frac{1}{2}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Globe or Angle, Screwed	2.25	2.75	3.50	5.40	7.35	9.80
Cross Valves, Screwed	-----	-----	-----	6.50	9.00	12.50
Globe or Angle, Flanged	-----	-----	-----	7.00	9.00	12.50
Cross Valves, Flanged	-----	-----	-----	9.00	11.75	16.50

OUTSIDE SCREW AND YOKE

Size	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	10	12
Globe or Angle, Screwed	7.00	9.00	12.50	15.25	19.00	24.00	27.00	37.00	63.00	72.00	114.00	170.00
Cross Valves, Screwed	-----	-----	16.25	20.00	23.50	30.65	35.25	47.25	78.00	92.00	162.00	240.00
Globe or Angle, Flanged	8.60	10.75	15.00	18.50	22.50	27.50	31.00	42.00	68.00	77.00	123.00	187.00
Cross Valves, Flanged	-----	-----	20.00	25.00	28.50	36.00	41.00	54.00	85.00	100.00	175.00	265.00

Handy Gate Valve,
BrassHandy Gate Valve
Iron Body"Clip" Quick Opening
Valve

Lunkenheimer Handy Gate Valves

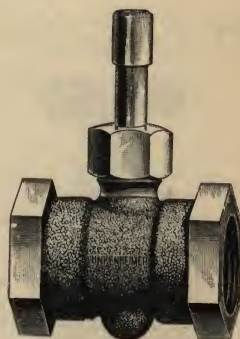
FOR WORKING PRESSURES NOT EXCEEDING 75 POUNDS

Size.....	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6
Brass.....	1.60	1.80	2.50	3.50	5.00	7.50	13.50	19.00	40.00	60.00	21.00	30.00	42.00
Iron Body.....						7.00	12.00	15.00	18.00	21.00	25.00	30.00	42.00

"Clip" Quick Opening Gate Valves

FOR WORKING PRESSURES UP TO 50 POUNDS

Size.....	½	¾	1	1¼	1½	2	2½	3
Iron Body, Brass Mounted, Screwed.....	2.00	2.35	2.50	3.50	5.00	7.50	12.00	15.00
Iron Body, Brass Mounted, Flanged.....			3.00	4.90	6.00	8.50	13.50	18.90

Lever Throttle Valve,
BrassLever Throttle Valve,
Iron Body

Butterfly Valve

Lunkenheimer Lever Throttle Valves

BRASS FOR 175, IRON BODY 150 POUNDS PRESSURE

Size.....	¾	1	1½	2	2½	3	3½	4	5	6
Brass.....	3.00	4.00	5.00	7.00	10.00	19.00	20.00	25.00	30.00	35.00
Iron Body.....				8.50	16.00	20.00	25.00	30.00	35.00	40.00

Butterfly Valves

FOR 125 POUNDS WORKING PRESSURE. NOT INTENDED TO BE STEAM TIGHT

Size.....	¾	1	1½	2	2½	3	3½	4	5	6	8	10
Brass.....	3.10	4.40	5.65	6.75	10.00	13.75	21.00	22.00	28.50	42.50	47.00	125.00
Iron Body, Screwed.....				8.00	9.50	12.00	16.00	18.50	28.50	42.50	47.00	125.00
Iron Body, Flanged.....				9.50	11.50	15.00	19.00	22.00	32.00	47.00	90.00	125.00



Brass, Screwed



I. B. Screwed



I. B. Flanged



Hub Ends

Standard Double Disc Gate Valves

FOR WORKING PRESSURES UP TO 125 POUNDS
BRASS

Size.....	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Screwed.....	1.25	1.25	1.30	1.75	2.50	3.50	5.00	7.50	14.00	20.00
Quick Opening, Screwed.....			3.25	3.25	4.50	6.00	8.00	12.00	22.00	30.00

IRON BODY, BRASS MOUNTED

Size.....	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	10	12
Screwed.....	10.00	11.50	14.00	17.00	19.00	24.00	27.50	32.50	45.00	54.00	90.00	125.00
Flanged.....	12.00	13.50	16.50	19.50	23.00	28.00	31.50	36.50	49.00	58.00	95.00	133.00

IRON BODY, HUB ENDS

Size.....	3	4	5	6	7	8	10	12	14	16	18	21
Hub or Bell Ends.....	14.00	19.00	27.50	32.50	45.00	54.00	90.00	125.00	173.00	250.00	340.00	415.00

Screwed, $\frac{1}{2}$ " to 2"Screwed, $2\frac{1}{2}$ " to 6"Flanged, $2\frac{1}{2}$ " to 6"

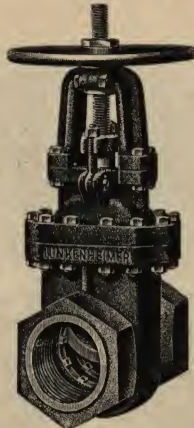
Lunkenhimer Double Seated "Clip" Gate Valves

FOR WORKING PRESSURES UP TO 100 POUNDS
IRON BODY, BRASS MOUNTED

Size.....	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Screwed.....	2.00	2.35	2.50	3.50	5.00	7.50	12.00	15.00
Flanged.....			3.00	4.90	6.00	8.50	13.50	16.90



Stationary Stem



Outside Screw and Yoke



Flanged

Lunkenheimier Double Seated "Victor" Gate Valves

FOR WORKING PRESSURES UP TO 175 POUNDS

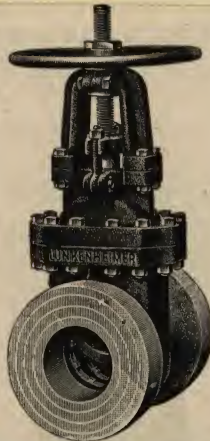
IRON BODY, BRASS MOUNTED. HEAVY

Size.....	2	2½	3	3½	4	4½	5	6
Stationary Stem, Screwed.....	14.00	17.50	22.50	27.00	33.00	38.00	45.00	53.00
Stationary Stem, Flanged.....	16.00	19.50	25.50	30.00	36.00	41.00	48.00	60.00
Outside Screw and Yoke, Screwed.....	17.00	20.50	23.50	32.50	39.00	46.50	52.00	61.00
Outside Screw and Yoke, Flanged.....	19.00	22.50	26.00	35.50	42.00	49.50	55.00	68.00

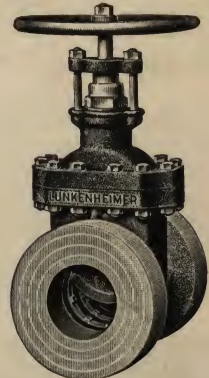
Size.....	7	8	10	12	14	15	16	18
Stationary Stem, Screwed.....	73.00	88.00	125.00	175.00				
Stationary Stem, Flanged.....	82.00	93.00	135.00	185.00	210.00	250.00	275.00	315.00
Outside Screw and Yoke, Screwed.....	83.00	105.00	145.00	190.00				
Outside Screw and Yoke, Flanged.....	92.00	110.00	155.00	200.00	220.00	250.00	300.00	330.00



Stationary Stem



Outside Screw and Yoke



Flanged

Lunkenheimier Double Seated "Victor" Gate Valves

FOR WORKING PRESSURES UP TO 250 POUNDS

IRON BODY, BRASS MOUNTED. EXTRA HEAVY

Size.....	1½	2	2½	3	3½	4	4½	5
Stationary Stem, Screwed or Flanged.....	25.00	31.00	39.00	47.00	62.00	69.00	76.00	100.00
Outside Screw and Yoke, Scd. or Flgd.	31.00	36.00	46.00	54.00	69.00	85.00	90.00	115.00

Size.....	6	7	8	10	12	14	15	16
Stationary Stem, Screwed or Flanged.....	124.00	150.00	180.00	250.00	320.00	405.00	475.00	560.00
Outside Screw and Yoke, Scd. or Flgd.	140.00	165.00	200.00	265.00	355.00	455.00	525.00	610.00

Sizes 14 inch and larger furnished flanged only.



Angle



Horizontal



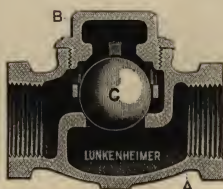
Vertical



Horizontal Swing



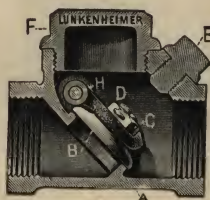
Angle Ball



Horizontal Ball



Vertical Ball



Horizontal Swing

Lunkenheimer Brass Check Valves

MEDIUM PATTERN

FOR WORKING PRESSURES UP TO 200 POUNDS

Size	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Horz., Angle or Vertical	.50	.50	.60	.85	1.15	1.55	2.30	3.25	5.20	10.00	14.00	19.75	30.75
Horz., with Drain Cock			1.05	1.30	1.60	2.00	2.75	3.70	5.65	10.50	14.50		
Horz., Angle or Vertical Ball	.85	.95	1.10	1.60	2.30	3.50	5.30	7.50	11.50	18.00	27.00		

MEDIUM PATTERN

FOR WORKING PRESSURES UP TO 150 POUNDS

Size	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3		
Horizontal Swing	1.25	1.25	1.30	1.75	2.25	3.25	4.25	6.25	11.50	16.00

Standard Brass Check Valves

Size	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Horizontal	.65	.65	.70	.90	1.15	1.60	2.25	3.15	4.75	9.00	13.00
Angle or Vertical		.72	.77	1.00	1.26	1.80	2.52	3.50	5.30	10.00	14.00



Horizontal



Vertical



Angle

Jenkins Brass Check Valves

Size	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3			
Horizontal, Angle or Vertical	1.10	1.10	1.20	1.80	1.90	2.60	3.60	5.00	7.50	13.50	21.00



Horizontal, Flanged



Swing, Screwed



Angle, Screwed

Lunkenheimer Iron Body Check Valves

MEDIUM PATTERN. BRASS MOUNTED

FOR WORKING PRESSURES UP TO 125 POUNDS

Size.....	2	2½	3	3½	4	4½	5	6	7	8	10	12
Horizontal or Angle, Screwed.....	5.70	7.50	10.00	15.00	16.50	20.00	27.00	34.00	47.00	67.00	105.00	155.00
Horizontal Swing, Screwed.....	8.30	10.50	12.00	16.00	20.00	24.50	27.50	33.00	.....	72.00	.....	.....
Horizontal or Angle, Flanged.....	7.30	9.10	12.50	17.00	19.00	23.00	29.00	38.00	52.00	72.00	115.00	175.00

EXTRA HEAVY PATTERN, BRASS MOUNTED

FOR WORKING PRESSURES UP TO 250 POUNDS

Size.....	2	2½	3	3½	4	4½	5	6	7	8	10	12
Horizontal or Angle, Screwed.....	23.00	26.50	29.50	34.00	42.00	47.00	57.00	71.00	96.00	125.00	200.00	260.00
Horizontal Swing, Screwed.....	26.00	30.00	33.00	39.00	42.00	48.00	55.00	68.00	.....	.....	.....	.....
Horizontal or Angle, Flanged.....	25.00	28.00	32.00	36.00	45.00	50.00	60.00	75.00	100.00	130.00	210.00	300.00
Horizontal Swing, Flanged.....	28.00	32.00	36.00	41.00	45.00	52.00	60.00	72.00	.....	.....	.....	.....

Standard Iron Body Check Valves

Size	2	2½	3	3½	4	4½	5	6	7	8	10	12
Horizontal, Screwed	3.60	6.50	8.90	12.25	14.25	19.00	22.00	30.00	.....	.....	.....	.....
Vertical, Screwed	9.50	12.50	17.00	21.00	30.00	33.00	40.00	.....	.....	.....	.....
Swing, Screwed	15.00	18.00	24.00	27.00	33.00	38.00	48.00	62.00	75.00	125.00	200.00
Horizontal, Flanged	11.50	.....	18.00	.....	26.00	35.00	50.00	62.00	115.00	175.00
Vertical, Flanged	45.00	67.00	78.00	135.00	.....	.....
Swing, Flanged	17.00	21.00	27.00	30.00	36.00	42.00	52.00	67.00	80.00	135.00	220.00



Foot Valve



Expansion Joint

Standard Foot Valves With Strainer

Size	1	1½	2	2½	3	3½	4	4½	5	6	7	8	10	12
Screwed	1.30	1.40	1.90	2.40	3.30	3.90	5.60	7.30	10.50	11.25	14.75	35.00	41.00	64.00
Flanged .....	.....	.....	.....	3.50	4.50	5.75	7.50	9.50	13.00	14.00	17.50	38.00	45.00	70.00

Standard Expansion Joints

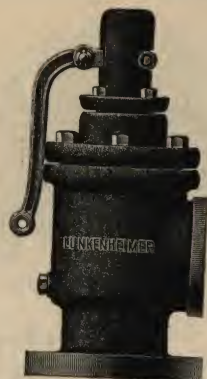
Size	½	¾	1	1½	2	2½	3	3½	4	5	6	7	8	9	10	12
Traverse	2	2½	2½	2½	2½	2½	2½	3	3½	4	5	6	7	7	7	8
Brass	1.50	2.20	2.75	4.00	5.00	8.00	17.50	24.00	.....	.....	.....	.....	.....	.....	.....	.....
Iron Body, Sed.....	.....	.....	.....	.....	.....	7.00	8.00	10.00	14.00	18.00	38.00	45.00	70.00	100.00	110.00	160.00
Iron Body, Fgd.....	.....	.....	.....	.....	.....	15.00	16.00	18.50	25.00	30.00	48.00	55.00	80.00	110.00	120.00	175.00



Iron Body, Screw Ends



Brass



Iron Body, Flange and Screw Ends

Lunkenheimer Pop Safety Valves

FOR WORKING PRESSURES UP TO 250 POUNDS

BRASS

Size	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{2}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Top Outlet	5.50	6.00	6.50	7.50	9.00	11.50	18.00	28.00	38.00
Suitable for Boilers, H.P.			6-8	8-10	10-15	20-30	35-50	60-75	75-100

PLAIN PATTERN. IRON BODY. BRASS MOUNTED

Size	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6
Screw, or Flange and Screw Ends	22.00	32.00	40.00	56.00	72.00	84.00	140.00	175.00
Suitable for Boilers, H.P.	35-50	60-75	75-100	100-125	125-150	150-175	175-200	200-275



Brass



Iron Body

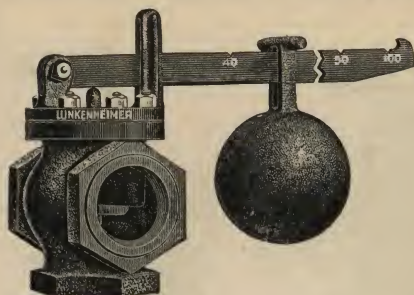
American Pop Safety Valves

BRASS

Size	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{2}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Top Outlet	10.00	10.00	12.00	15.00	20.00	30.00	55.00	100.00
Suitable for Boilers, H.P.	3-6	3-6	3-10	10-20	20-30	30-40	40-75	75-100

IRON BODY

Size	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6
Screwed or Flanged, Bronze Seat	45.00	55.00	65.00	85.00	106.00	125.00	150.00	180.00	225.00
Suitable for Boilers, H.P.	30-40	40-75	75-100	100-125	125-150	150-175	175-200	200-225	225-up



Globe Safety Valve

Standard Relief Valve
Male InletRelief Valve
Male Inlet

Brass Ball and Lever Safety Valves

Size	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3
Globe or Angle	2.20	2.50	3.25	3.90	4.70	7.15	9.00

Iron Body Ball and Lever Safety Valves

Size	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4	4 $\frac{1}{2}$	5	6	7	8
Globe or Angle	5.00	5.80	7.80	13.25	17.25	23.00	28.75	34.50	41.50	57.75	93.50

Standard Relief Valves

FOR PRESSURES UP TO 250 POUNDS

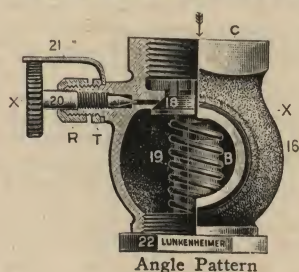
Size	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$
Finished Brass	10.00	10.00	12.50	15.50	19.00	23.00

Lunkenheimer Improved Pattern Relief Valves

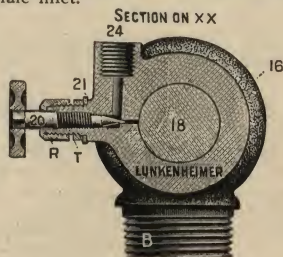
FOR WORKING PRESSURES UP TO 250 POUNDS

Size	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3
Brass, Angle Outlet, Male or Female Inlet	3.40	3.80	5.00	6.00	7.60	12.00	18.50	27.50

It is the usual practice to set the valves to relieve at from 10 to 15 pounds higher than the working pressure, and when ordering, specify the pressure at which the valves are to be set to blow off, also whether wanted with male or female inlet.



Angle Pattern



Angle Pattern



Priming Cup

Lunkenheimer Plain Pattern Generator Valves

FOR GASOLINE ENGINES

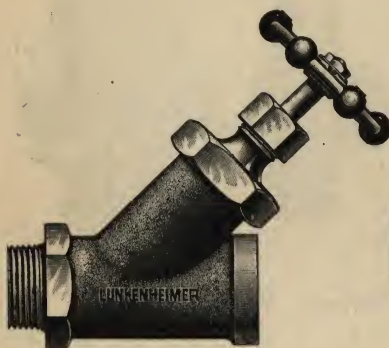
Above are illustrated the original and simplest forms of generator valves. The gasoline inlets are tapped for $\frac{1}{4}$ " pipe on all sizes excepting the $\frac{1}{2}$ ", which is tapped $\frac{3}{8}$ " pipe size.

Size	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	2
Brass, Angle Pattern	2.60	3.30	4.00	4.80	6.00

Lunkenheimer Priming Cups

FOR GASOLINE ENGINES

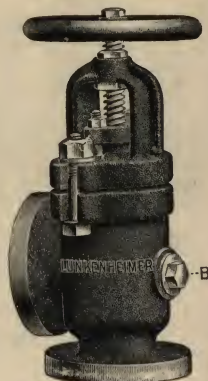
Number	00	0	1	2	3	4
Pipe Thread	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$
With Lever Handle	.75	.85	.95	1.10	1.40	1.65



Y Blow-Off Valve



Duro, Screwed



Duro, Flanged

Lunkenheimer Regrinding "Y" Blow-Off Valves

FOR WORKING PRESSURES UP TO 175 POUNDS

Size.....	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Brass, Male and Female Ends.....	2.75	3.25	4.50	5.75	9.00	18.50

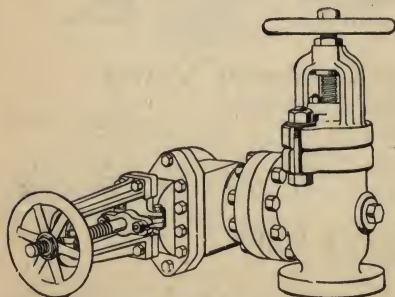
Lunkenheimer Duro Blow-Off Valves

FOR WORKING PRESSURES UP TO 250 POUNDS

Size.....	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Iron Body Brass Mounted, Screwed.....	10.70	12.50	16.00	21.00	27.50
Iron Body Brass Mounted, Flanged.....	12.00	14.00	18.00	23.00	30.00

Heretofore, in all makes of Blow-off Valves, the seat was so located that as the disc approached same, there would be an accumulation of scale and sediment. The effect of this accumulation would be to cut out the bearing surface to such an extent that in a short time the valve would become leaky. Various methods have been invented whereby the disc would fit tightly in the valve body, the object being to prevent the scale from passing on to the seat bearing after the disc had passed and cut off the inlet.

This method, however, has not proven satisfactory, as the valve body would soon wear, and in a short time, permit the passage of scale and sediment. In the "Duro" Valve, this defect has been overcome. The plug fits snugly in a separate and easily removable bronze casting, which can be readily replaced when worn. Any accumulation of scale that might remain on the seat before the disc is brought in contact with same, is washed off by the water which passes around the plug when seating.



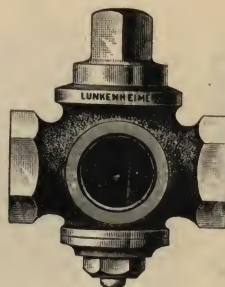
Lunkenheimer "Duro" Blow-Off and
"Victor" Gate Valves bolted together

A combination extensively used is that of the "Duro" Blow-off Valve with a "Victor" Gate Valve bolted between it and the boiler. (See cut). This combination has many advantages that cannot be obtained by the use of a blow-off valve alone. The gate valve is used as an emergency valve, should accident happen to the blow-off valve, in which event, the former can be closed until repairs are made.

It not only serves as an emergency valve, but also insures a perfectly tight blow-off arrangement. The gate valve should be opened and closed but once a day, being closed after the last blow-off and opened early in the morning. It is essential, however, that the gate valve be operated at least once in twenty-four hours, as this will always insure its easy operation. Upon request, we will be pleased to quote prices on these combinations.



Steam



Three Way



Gas Service



Asbestos Packed

Brass Cocks

Size	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	1	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3
Steam Cocks	.85	1.00	1.25	1.70	2.35	3.70	4.85	7.30	14.50
Steam Cocks, Three Way	1.80	2.10	2.50	3.00	3.75	5.75	7.15	11.00	18.75
Gas Service Cocks	.75	.85	.95	1.15	1.50	2.25	3.10	5.00	11.00

Standard Iron Cocks

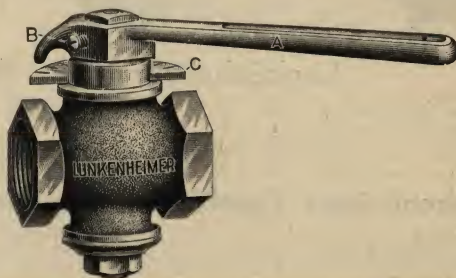
Size	$\frac{1}{8}$	$\frac{1}{4}$	1	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4	5	6	8
All Iron, Screwed	.90	1.05	1.30	1.60	1.95	2.70	4.40	6.75	12.00	15.50	32.00	45.00
With Brass Washer, Screwed	1.00	1.20	1.55	1.95	2.35	3.20	5.15	7.75	14.00	19.00	38.00	53.00
With Brass Plug, Screwed	1.30	1.60	1.90	2.65	3.75	5.25	8.75	13.00	27.50	36.50	67.00	94.00
All Iron, Flanged		2.25	2.75	3.25	4.25	6.25	9.50	15.00	19.00	36.00	50.00	107.00
With Brass Washer, Flanged		2.50	3.10	3.65	4.75	7.00	10.50	17.00	22.50	42.00	58.00	117.00
With Brass Plug, Flanged		3.00	3.75	5.00	7.00	10.50	15.75	30.00	40.00	70.00	100.00	210.00

Iron Three-Way Cocks

Size	$\frac{1}{8}$	1	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4	5	6
All Iron, Screwed	1.65	1.80	2.05	2.65	3.65	5.35	7.50	14.00	19.00	36.50
With Brass Washer, Screwed	1.80	2.05	2.40	3.05	4.15	6.10	8.50	16.00	22.50	42.50
With Brass Plug, Screwed	2.20	2.40	3.10	4.50	6.25	9.75	13.75	30.00	40.00	71.50

Vulcanized Asbestos Packed Iron Cocks

Size	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	1	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4	5	6
Standard, Sed. or Flgd.	1.60	1.60	1.60	1.60	2.10	3.00	4.00	4.75	7.00	12.00	18.00	27.00	30.00
Heavy, Sed. or Flgd.	1.50	1.75	2.00	2.50	3.00	4.25	5.75	8.50	14.50	21.50	32.50	36.00	
Ex. Heavy, Sed. or Flgd.			2.40	3.00	3.50	5.00	6.75	10.00	17.00	26.00	38.00	42.00	



Gas Engine Throttle Cocks

Size	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$
Brass, Finished Lever and Dial	1.90	2.00	2.70	4.20	5.90	7.30	10.00
Brass, Finished All Over	2.60	2.80	3.60	5.40	7.40	9.30	12.50



With Valve



Without Valve



Whistle Valve

Standard Brass Whistles

Diam. of Bell.....Inches	1	1½	1¾	2	2½	3	3½	4	5	6	8	10	12
Size of Pipe.....	¾	1	1¼	1½	1¾	2	2½	3	3½	4	5	6	8
Without Valve	2.20	2.75	3.00	4.35	5.25	7.25	9.50	12.00	19.00	24.00	70.00	175.00	350.00
With Valve	3.10	3.75	4.00	5.50	6.50	8.50	11.50	15.00	22.50	33.00	95.00	225.00	425.00

Whistle Valves

Size	¾	1	1½	2	2½	3
Brass, Screwed	2.00	2.50	3.00	3.50	5.00	6.00



With Valve



Balanced Whistle Valve



Fire Alarm

Lunkenhimer Brass Whistles

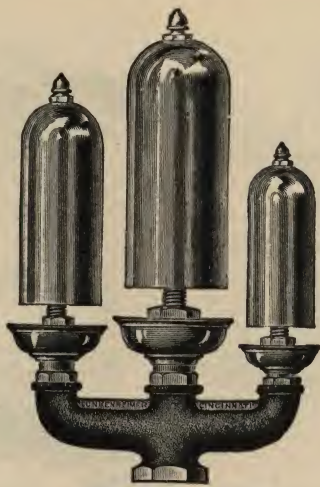
Diam. of Bell.....Inches	1	1¼	1½	2	2½	3	3½	4	5	6	8	10	12
Size of Pipe.....	¾	1	1¼	1½	1¾	2	2½	3	3½	4	5	6	8
Without Valve.....	2.20	2.75	3.00	4.35	5.25	7.25	9.50	12.00	21.00	31.00	70.00	150.00	290.00
With Valve.....	3.10	3.75	4.00	5.50	6.50	8.50	13.00	16.50	27.50	31.00	95.00	210.00	320.00

Lunkenhimer Combination or Fire Alarm Whistles

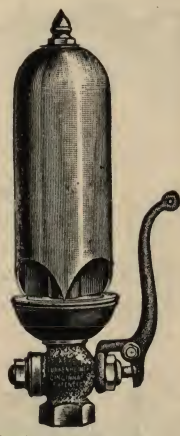
Diameter of Bell.....Inches	2½	3½	5	8
Size of Pipe.....	2	3	4	6
With Valve, Iron Base	31.00	40.00	100.00	100.00
With Valve, Brass Base	24.00	40.00	53.00	120.00
Without Valve, Iron Base	22.00	28.00	37.00	95.00

Lunkenhimer Balanced Whistle Valves

Size	1	1½	2	3
Brass, Screwed	18.00	22.20	26.60	44.40



Three Whistle Chime



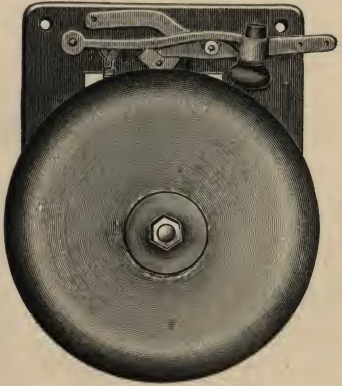
Single Bell Chime

Lunkenheimer Three-Whistle Chimes

No. 1	Size Pipe Connection.....		1
	Composed of one each 1½, 2 and 2½-inch Whistles, Iron Branch.....		22.00
	Composed of one each 1½, 2 and 2½-inch Whistles, Brass Branch.....		27.00
No. 2	Size Pipe Connection.....		2
	Composed of one each 3½, 4 and 5-inch Whistles, Iron Branch.....		40.00
	Composed of one each 3½, 4 and 5-inch Whistles, Brass Branch.....		66.00
No. 2½	Size Pipe Connection.....		2
	Composed of special short Whistles (very shrill), Iron Branch.....		50.00
	Composed of special short Whistles (very shrill), Brass Branch.....		80.00
No. 3	Size Pipe Connection.....		3
	Composed of one each 5, 6 and 8-inch Whistles, Iron Branch.....		109.00
	Composed of one each 5, 6 and 8-inch Whistles, Brass Branch.....		160.00
No. 3½	Size Pipe Connection.....		3
	Composed of special long Whistles (very harmonious), Iron Branch.....		130.00
	Composed of special long Whistles (very harmonious), Brass Branch.....		190.00

Lunkenheimer Single Bell Chime Whistles

Diameter of Bell.....Inches	1½	2	2½	3	3½	4	5	6	8	10	12
Size of Pipe.....	¾	1	1½	2	2½	3	3½	4	5	6	8
Brass, with Valve.....	7.00	10.00	13.00	16.00	22.00	28.00	44.00	60.00	145.00	235.00	400.00
Brass, without Valve.....	5.50	8.50	10.50	13.50	18.50	24.00	37.00	49.00	120.00	188.00	370.00
Iron Base, without Valve.....				12.00	16.50	22.00	33.00	45.00	108.00	155.00	340.00



Trip Gong Bells

Diam. ....inches	2	3	4	5	6	7	8	9
Price per dozen	9.00	10.00	12.50	16.50	24.00	34.00	46.00	70.00
Diam. ....inches	10	12	14	15	16	18	20	24
Price per dozen	84.00	150.00	212.00	236.00	260.00	310.00	480.00	1176.00



No Stuffing Box



With Stuffing Box

Compression Gage Cocks

Size	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$
Wood wheel	.95	1.00	1.25
Wood wheel, with stuffing box	1.20	1.30	1.45



Mississippi Gage Cock



Ball Gage Cock

Gage Cocks

Size	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$
Mississippi	each .75	1.00	1.50
Ball	each .85	.90	1.00



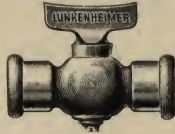
Lunkenheimer Self-Grinding Rotating Gage Cocks

While the cock is open, the passage of the steam or water imparts a rotary motion to the stem. When the cock is closed, the boiler pressure forces the valve to its seat while the stem is rotating, thus grinding in the seat bearing a little every time the cock is opened.

Size	$\frac{1}{2}$	$\frac{3}{4}$
Finished Brass	2.50	2.50



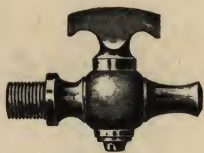
Iron Pipe Siphon



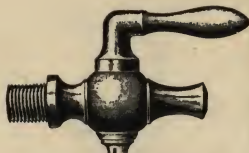
Steam Gage Cock

Cocks and Siphons For Steam Gages

Size	$\frac{1}{2}$	$\frac{3}{4}$
Iron Pipe Siphon	.50	
Steam Gage Cock	.70	.85



T. H. Single Thread



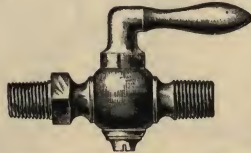
L. H. Single Thread



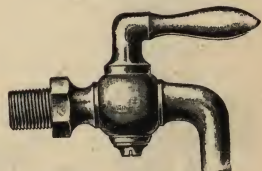
T. H. Single Thread, Bibb



T. H. Double Thread, Male



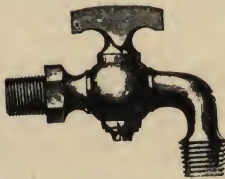
L. H. Double Thread, Male



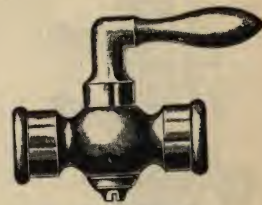
L. H. Single Thread, Bibb



T. H. Double Thread, Female



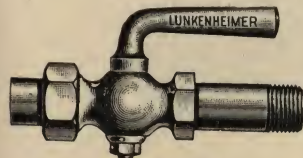
T. H. Double Thread, Bibb



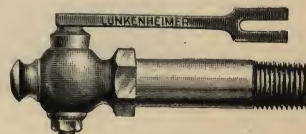
L. H. Double Thread, Female

Air Cocks

Size	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1
Tee handle, single thread	.40	.45	.50	.60
Tee handle, double thread, male	.55	.65	.75	.90
Tee handle, double thread, female	.65	.70	.85	1.00
Tee handle, bibb, single thread	.70	.80	.90	1.00
Tee handle, bibb, double thread	.80	1.00	1.10	1.35
Lever handle, single thread	.55	.60	.65	.75
Lever handle, double thread, male	.70	.80	.90	1.05
Lever handle, double thread, female	.80	.85	1.00	1.15
Lever handle, bibb, single thread	.85	.95	1.05	1.15
Lever handle, bibb, double thread	.95	1.15	1.25	1.50



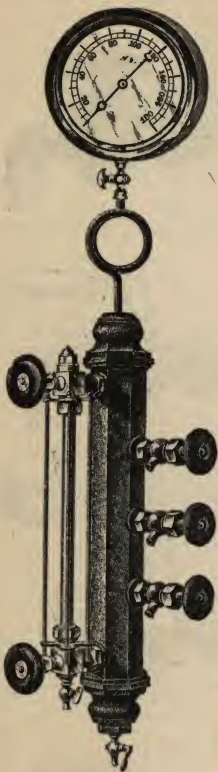
Lever Handle with Union



Traction Engine

Cylinder Cocks

Size	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1 1/2	2
Tee Handle with Union	1.35	1.60	1.85	2.35	2.60	3.10
Lever Handle with Union	1.50	1.75	2.00	2.50	2.75	3.25
Traction Engine	1.45	1.55	1.70	2.20	3.00	4.00



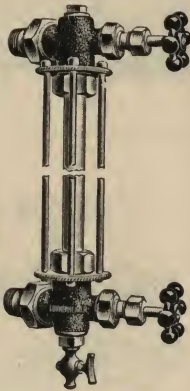
Combination Gage Column
With fittings complete



Two Rod Gage



Lunkenheimer Automatic Water Gages



Water Gages

No.	Price.	Size of Glass.	Style.	No. Guard Rods.	Finish.	Wheel.	Shank.
1	3.00	2x12	Round Body.	2	Bronzed.	Iron.	
3	4.25	3x12	Round Body.	2	Polished.	Wood.	
5	5.00	3x12	Round Body.	4	Polished.	Wood.	
9	6.00	3x12	Square Body.	4	Polished.	Wood.	
7	6.25	2x16	Round Body.	4	Polished.	Wood.	
9 1/2	8.00	3x16	Square Body.	4	Polished.	Wood.	

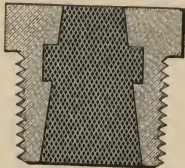
Lunkenheimer Automatic Water Gages

3 rod, part finished, iron wheels,	5/8" glass, 1 1/2" pipe thread	each	11.00
3 rod, all finished, wood wheels,	5/8" glass, 1 1/2" pipe thread	each	13.50
3 rod, part finished, iron wheels,	3/4" glass, 1 1/2" pipe thread	each	12.00
3 rod, all finished, wood wheels,	3/4" glass, 1 1/2" pipe thread	each	14.50

Lunkenheimer Automatic Water Gauge will be found to be all that its name implies and can be relied upon to act promptly in shutting off water and steam when the glass breaks, thereby eliminating the danger and annoyance attendant upon closing of valve attached to gauges.

Combination Gage Columns

Special combinations furnished as desired. Prices on application.



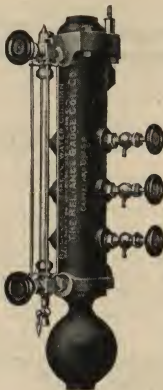
OUTSIDE PLUG

Fusible Plugs

Size	1/2	3/4	1	1 1/2	1 3/4	2
Fusible Plugs.....each	.60	.75	1.00	1.50	2.00	3.00



Low Water Alarm



Combined High and Low Water Alarm

Reliance Safety Water Columns
COMBINED HIGH AND LOW WATER ALARMS

Size of Column	Kind and Size of Boiler	Variation Between Alarms	List Price of Columns Without Water Gage and Gage Cocks
1	36" to 54"	6"	28.00
5	56" to 72"	8"	30.00
7	Water Tube	12"	35.00
9	Others Determined by	18"	40.00
11	Natural Variation of	24"	42.50
13	Water in Boiler	30"	45.00
15	(See Note)	36"	50.00

LOW WATER ALARMS

2	36" to 54"	-----	25.00
6	56" to 72"	-----	28.00
8	Water Tube	-----	35.00

Prices of Water Gages and Gage Cocks will be furnished on application.

NOTE—The size of the Column is in all cases determined by the natural variation of the water in the boiler on which it is to be used. No mistake will be made ordinarily by selecting a "Reliance" Column having the extreme gage cocks the same distance apart as on the plain Column furnished with boiler.

To avoid mistakes, when ordering, please note that Combined High and Low Water Alarms are designated by ODD Numbers, and Low Water Alarms by EVEN Numbers.

Gage cocks can be placed on either side, making column either right or left hand.



Iron Water Column Bodies

Number	1	2	3
Columns only, painted and tapped.....each	4.00	6.00	8.00
Center to center of water gage connections.....inches	9½	13½	18
Center to center of gage cocks.....inches	2½	3½	4
Extreme length.....inches	13	18	22½
Tapped for boiler connections, top and bottom.....inches	1	1	1½
Tapped for water gage connections.....inches	1	1	1½
Tapped for gage cocks.....inches	1	1	1½



Scotch Gage Glasses

PRICE PER DOZEN

Length	inches	10	11	12	13	14	15	16	17	18	19	20	22	24
Outside diam. $\frac{1}{2}$ and $\frac{3}{4}$ inch		3.00	3.24	3.60	3.84	4.20	4.44	4.80	5.04	5.40	5.64	6.00	6.60	7.20
Outside diam. $\frac{3}{4}$ inch		3.60	3.96	4.32	4.80	5.16	5.52	5.88	6.24	6.60	7.08	7.44	8.16	8.88
Outside diam. $\frac{7}{8}$ inch		5.04	5.64	6.12	6.60	7.08	7.56	8.16	8.64	9.12	9.60	10.20	11.16	12.12
Outside diam. 1 inch		6.12	6.72	7.32	7.92	8.52	9.12	9.72	10.32	10.92	11.52	12.12	13.44	14.64



Round

Half-Round

Square



Gilbert

Gage Glass Rings

Size		$\frac{1}{2}$	$\frac{3}{4}$	1
Round, Moulded	per dozen	.25	.25	.35
Half Round, Moulded	per dozen	.40	.50	.60
Square, Moulded	per dozen	.30	.35	.40
Gilbert Self-Packing Gage Glass Preservers	per dozen	.60	.60	.60

The Gilbert Gage Glass Preserver keeps the glass from contact with the metal, allowing for contraction and expansion, and thus insuring against breakage of the glass.



Jelco Glass Tube Cutter

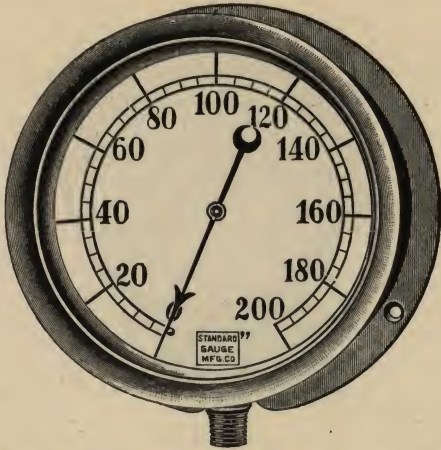
Price each 2.00



Simplex Glass Tube Cutter

Price each 50 cents

If sent by mail, add 7 cents.



Single Spring Steam or Pressure Gages
Single Spring Vacuum Gages

Size Dial -----inches	2	2½	3	3½	4½	5	5½	6	6½	8½	10	12
Iron Case, Brass Ring -----	6.00	6.00	6.00	7.00	8.00	8.00	10.00	13.00	16.00	22.00	32.00	50.00
Iron Case, N. P. Ring -----	6.15	6.15	6.15	7.18	8.20	8.20	10.25	13.50	16.60	22.75	33.00	51.50
Brass Case -----	8.00	8.00	8.00	9.00	10.00	11.00	12.00	16.00	20.00	30.00	40.00	75.00
Nickel Plated Case -----	8.60	8.60	8.60	9.75	11.00	12.00	13.25	17.50	22.00	32.50	43.00	79.00

Double Spring Steam or Pressure Gages
Auxiliary Spring Steam or Pressure Gages

Size Dial -----inches	4½	5	5½	6	6½	8½	10	12
Iron Case, Brass Ring -----	10.00	11.00	12.00	15.00	18.00	25.00	37.00	55.00
Iron Case, N. P. Ring -----	10.20	11.20	12.25	15.50	18.60	25.75	38.00	56.50
Brass Case -----	12.00	13.00	14.00	18.00	22.00	34.00	45.00	80.00
Nickel Plated Case -----	13.00	14.00	15.25	19.50	24.00	36.50	48.00	84.00

Compound Pressure and Vacuum Gages

Size Dial -----inches	3½	4½	5	5½	6	6½	8½	10	12
Iron Case, Brass Ring -----	10.00	12.00	14.00	14.00	16.00	20.00	30.00	40.00	60.00
Iron Case, N. P. Ring -----	10.18	12.20	14.25	14.25	16.50	20.60	30.75	41.00	61.50
Brass Case -----	12.00	14.00	16.00	16.00	20.00	25.00	40.00	50.00	80.00
Nickel Plated Case -----	12.75	15.00	17.25	17.25	21.50	27.00	42.50	53.00	84.00

Combination Water Pressure Gages
Altitude Gages

Size Dial -----inches	4½	5	5½	6	6½	8½	10	12
Iron Case, Brass Ring -----	12.00	12.00	14.00	16.00	20.00	30.00	40.00	60.00
Iron Case, N. P. Ring -----	12.20	12.20	14.25	16.50	20.60	30.75	41.00	61.50
Brass Case -----	14.00	14.00	16.00	20.00	25.00	40.00	50.00	80.00
Nickel Plated Case -----	15.00	15.00	17.25	21.50	27.00	42.50	53.00	84.00

Ammonia Gages

Size Dial -----inches	4½	5	5½	6	6½	8½
Iron Case, N. P. Ring -----	25.50	30.50	30.50	35.50	40.60	45.75

Traction Engine Gages

Size Dial -----inches	4½	5
Iron Case, Brass Ring -----	10.00	11.00



Pittsburg Recording Gages

This gage does all the ordinary pressure gage does and does it just as well.

It does more—a great deal more. It accurately records upon a chart the exact pressure of steam, water, gas, air, etc., every moment of the day and night. This information is a valuable aid in promoting the efficiency of the steam plant.

It is a demonstrable fact that the wear and tear on the boiler—the strain of expansion and contraction—caused by fluctuations in the steam pressure, directly affects the life of the boiler, therefore its safety.

Such fluctuations also directly concern the working efficiency of the engine—the entire plant—as the more uniform the pressure, the more and better the work done.

By making a record of every fluctuation in the steam pressure the Pittsburg Recording Gage is a potent incentive for the boiler attendant to keep a steady pressure at all times.

It is also an arbitrator of all disputes as to the steam pressure, whose decision is just, impartial and unimpeachable.

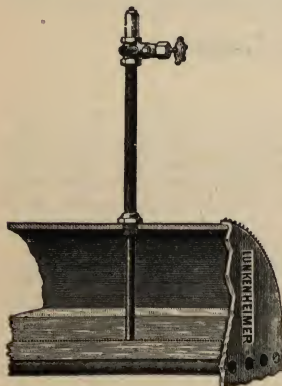
It may be placed near the boiler, or any distance therefrom—the office, for instance—enabling those in authority to observe every fluctuation.

Made of brass, highly polished and heavily nickel-plated. Shipped on trial and returnable at our expense if not satisfactory in every way. Charts are 8" diameter.

PRICES

In Nickeled Case with hinged Brass or Nickle-Plate Cover and Lock, including 100 Charts.....	50.00
Electric Alarm Attachment.....	10.00
Additional Charts, per hundred.....	1.25
Recording Ink, per bottle.....	.25

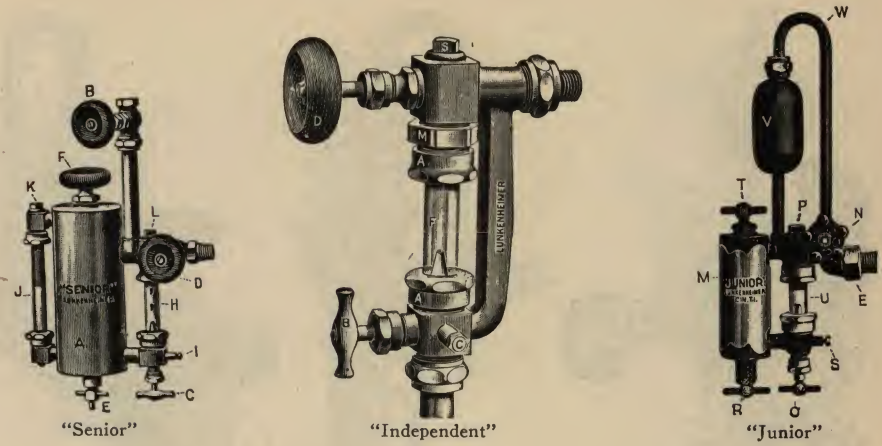
Lunkenheimer Low Water Alarm For Steam Boilers



This Fusible Plug Low Water Alarm is simple, practical and inexpensive, and so easily attached that no steam boiler should be without one. It is an attachment almost as important and necessary to a steam boiler as a Steam Gauge or Safety Valve, and is reliable and cannot get out of order. It consists of a tube, one end of which reaches down to the low water line, while the other has a valve and fusible plug attached.

The operation is as follows:—When the water in the boiler drops down below the end of the tube it drains the water out of the same and permits steam to enter, which melts the fusible metal, and with a loud report the steam hisses through the pipe, and thus gives notice of the approaching danger. The valve is then shut off, a new fusible disc attached, the valve opened, and the alarm is again ready. Each alarm is supplied with several fusible discs, and extra ones can be furnished at small cost. Our low Water Alarms are fully warranted to give satisfaction. When ordering, always state the boiler pressure. Unless otherwise ordered, fusible plugs are furnished for one hundred pounds working pressure.

Low Water Alarm Complete with 3 Extra Fusible Discs.....	each 7.00
Extra Fusible Discs.....	per dozen 2.20



“Senior” Sight-Feed Lubricators

This Lubricator is intended for attachment to steam pipe above throttle.

Size	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{2}$	1	$\frac{3}{4}$	1
Finished Brass	12.00	15.00	17.00	20.00	22.00	25.00	28.00	38.00	60.00
Nickel Plated	13.50	17.00	19.00	22.50	25.00	28.50	32.00	43.00	65.00
Shanks, pipe thread	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
Suitable for engine cylinders									
inches	to 4	4 to 6	6 to 10	10 to 14	14 to 18	18 to 24	24 to 30		
Condenser connections, Brass	.60	.70	.80	1.00	1.20	1.40	1.50	1.60	1.70
Condenser connections, Nickel	.70	.80	.90	1.15	1.40	1.60	1.70	1.80	2.00
Length of condenser pipes									
necessary, in	15	18	24	30	36	42	48	60	72

Condenser connections consist of brass tubing and angle valve. Lubricators are sent without them unless otherwise ordered

“Junior” Sight-Feed Lubricators

This is a single connection Lubricator especially adapted for traction engines, pumps, etc.

Size	pint	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	1
Partly finished		7.00	8.00	10.00	14.00
All finished, brass condensers and pipes, and wood handles		8.50	10.00	12.00	16.00
All finished and nickel plated, brass condensers and pipes, and wood handles		10.00	11.50	13.50	18.00
Shanks, pipe thread		$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$

“Independent” Sight-Feed Lubricators

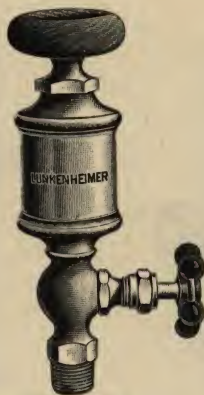
“Independent” Sight-feeds are intended to be used in connection with closed pressure tank systems for the purpose of supplying oil to steam chests and cylinders of steam engines. This method of lubrication is often used where a number of engines are in close proximity to each other, and the oil for all is supplied from a centrally located tank under pressure.

These devices are heavy and substantial in construction, and have unions for both oil pipe and engine connections. The shanks are threaded for $\frac{3}{8}$ -inch pipe and oil connections for $\frac{1}{4}$ -inch pipe.

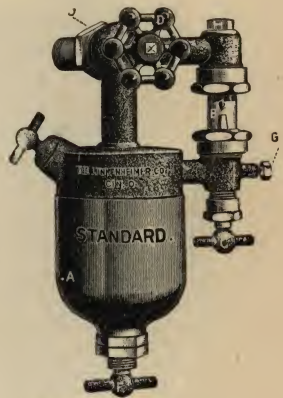
Plain Brass	6.00
Plain Nickel-plated	7.00
With Equalizing Attachment, Brass	6.50
With Equalizing Attachment, Nickel-plated	7.50



"Paragon"



Plain Lubricator



Boiler Oil Feeder

"Paragon" Sight-Feed Lubricators

FOR GAS, GASOLINE OR OIL ENGINES

Number	1½	2	3	4	5	6	8
Finished brass	2.00	2.80	3.50	4.00	5.40	7.00	14.00
Nickel plated	2.40	3.25	4.10	4.60	6.25	8.20	16.40
Extra glasses	.10	.12	.15	.25	.35	.65	1.50
Extra cork washers	.36	.40	.45	.50	.60	.75	1.50
Outside diameter of glass	1½	2	2½	2½	3	3½	4½
Height of glass	1½	1½	2½	2½	3	4	5
Capacity (oil)	1½	2½	4	5	10	18	32
Shank. pipe thread	½	¾	¾	¾	¾	¾	¾

Plain Engine Lubricators

Diameter	1	1½	1½	1½	2	2½	2½	3
Plain	2.00	2.20	2.40	2.60	2.90	3.25	3.75	4.75
Pipe thread	¾	¾	¾	¾	¾	¾	¾	¾

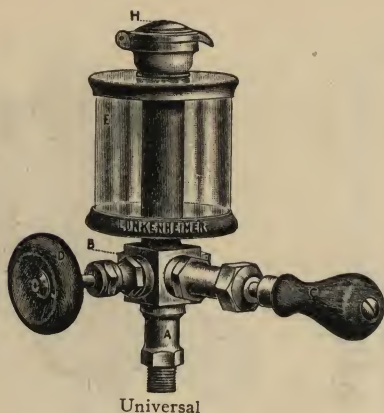
"Standard" Boiler Oil Feeders

FOR FEEDING OIL INTO BOILERS

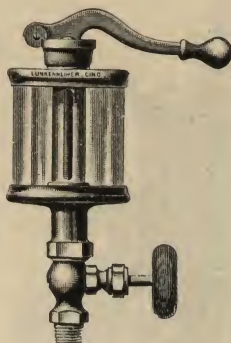
Size	½ Pt.	1 Pt.	1 Qt.	½ Gal.	1 Gal.	1½ Gal.	2 Gal.
Iron, brass trimmings	each	7.50	10.00	13.50	16.50	19.50	22.50
Brass, part finished	each	8.00	10.60	14.25	17.50	21.00	24.50
Brass, all finished	each	8.50	11.20	15.00	18.50	22.00	25.50
All finished and nickeled	each	9.00	11.80	15.60	19.10	22.60	26.10
Suitable for boilers	H.P.	10	25	75	100	150	250

The "Standard" Boiler Oil Feeder is intended to be attached to the feed water pipe of steam boilers to feed boiler oil into same, which effectually removes existing incrustations and prevents the formation of new scale; also preventing foaming, pitting and leaky joints. Many boiler explosions are caused by the weakening of the iron from strains due to unequal expansion. This unequal expansion is directly caused by the scale on the heating surface, also burning and blistering same.

All Feeders have ¾-inch pipe connection on shank.



Universal



Alpha

Universal Hand Oil Pumps

Number	3A	5A	6A	8A
Glass body, finished brass	each 7.50	each 8.50	each 10.00	each 15.00
Glass body, nickel plated	each 8.25	each 9.50	each 11.00	each 16.50
Brass body, finished brass	each 8.30	each 9.50	each 11.00	each 16.50
Brass body, nickel plated	each 9.10	each 10.30	each 12.20	each 18.20
Extra glasses	each .15	each .35	each .65	each 1.50
Extra cork washers	per dozen .45	per dozen .60	per dozen .75	per dozen 1.50
Outside diameter of glass	inches 2½	inches 3	inches 3½	inches 4½
Height of glass	inches 2½	inches 3	inches 4	inches 5
Capacity	½ Pint.	½ Pint.	1 Pint.	1 Quart.
Shank, pipe thread	¾	¾	¾	¾

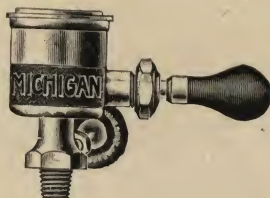
This pump can be made to attach either vertically or horizontally by transposing plug B and shank A, which are interchangeable.

Alpha Glass Body Oil Pumps

Number	3	5	6	8
Finished brass	each 7.50	each 8.50	each 10.00	each 15.00
Nickel plated	each 8.25	each 9.50	each 11.00	each 16.50
Extra glasses	each .15	each .35	each .65	each 1.50
Extra cork washers	per dozen .45	per dozen .60	per dozen .75	per dozen 1.50
Outside diameter of glass	inches 2½	inches 3	inches 3½	inches 4½
Height of glass	inches 2½	inches 3	inches 4	inches 5
Capacity	½ Pint.	½ Pint.	1 Pint.	1 Quart.
Shank, pipe thread	¾	¾	¾	¾



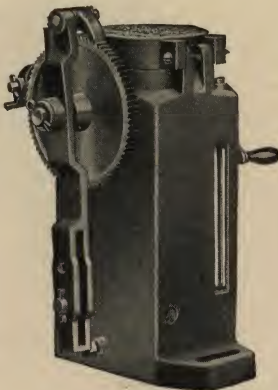
Horizontal



Vertical

Brass Oil Pumps

Size	½ Pint.	½ Pint.	1 Pint.
Either style, screw top, brass finish	3.50	5.00	7.50
Size of bowl	2½x2½	2½x2½	3½x3½
Shank	¾	¾	¾



Style D, Single

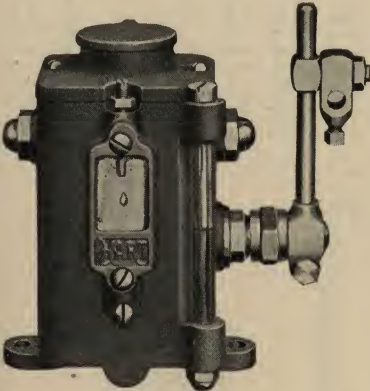


Style D, Double

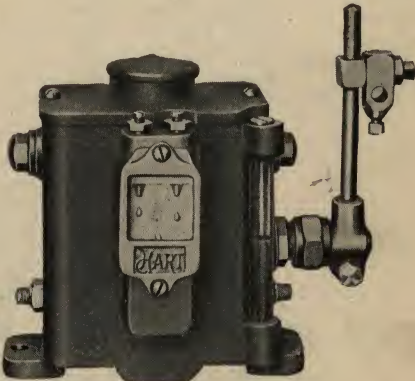
Kipp Valveless Oil Pumps

Style D Single	8.00
Style D Double	10.00

This is a Mechanical Force Feed Oil Pump, without valves. It has no stuffing boxes to leak. It is furnished with a hand crank for pumping when engine is at rest, or when requiring an immediate and additional supply of oil. It is also provided with a heating chamber.



Single



Double

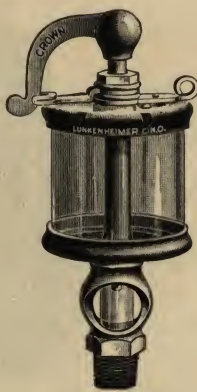
Hart Force Sight-Feed Oil Pumps

Model B Single	12.00
Model B Double	18.00

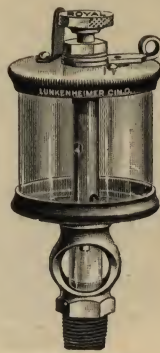
The special feature of this pump is its simplicity, there being no ratchets or pawls to stick or wear out. The feed can be adjusted from one drop to a solid stream without stopping pump. It is fitted with a heating coil in the base.



"Pioneer"



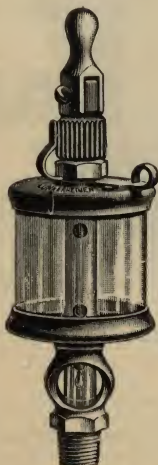
"Crown"



"Royal"

Oil Cups

Number	000	00	0	1	1½	2	3	4	5	6	8
Outside diam. of glass	1 1/4	1 1/2	1 3/4	1 7/8	1 15/16	2	2 1/4	2 1/2	3	3 1/2	4 1/2
Height of glass	1 1/4	1 1/2	1 3/4	1 7/8	1 15/16	2	2 1/4	2 1/2	3	3 1/2	4 1/2
Capacity	1	1 1/2	1 3/4	1 7/8	1 15/16	2	2 1/4	2 1/2	3	3 1/2	4 1/2
Shank, pipe thread	1/4	1/2	3/8	1/2	5/8	3/4	7/8	1	1 1/4	1 1/2	1 3/4
Pioneer	Finished brass	each .70	.75	.80	1.00	1.25	1.50	1.90	2.40	3.10	4.00
	Nickel plated	each .80	.85	.95	1.20	1.50	1.75	2.20	2.75	3.50	4.50
Royal	Finished brass	each .95	1.10	1.25	1.50	1.75	2.10	2.55	3.15	3.90	4.80
	Nickel plated	each 1.05	1.20	1.40	1.70	2.00	2.35	2.85	3.50	4.30	5.30
Crown	Finished brass	each		1.25	1.50	1.75	2.10	2.55	3.15	3.90	4.80
	Nickel plated	each		1.40	1.70	2.00	2.35	2.85	3.50	4.30	5.30
Sentinel	Finished brass	each		3.00	3.25	3.50	3.75	4.25	5.25	7.25	9.25
	Nickel plated	each		3.50	3.75	4.00	4.25	4.75	5.75	8.00	10.25
Sentinel, Elbow Shank	Finished brass	each		3.50	3.80	4.10	4.50	5.00	6.00	8.25	9.25
	Nickel plated	each		4.00	4.30	4.60	5.00	5.50	6.50	9.00	10.25
Cardinal	Finished brass	each		1.90	2.10	2.30	2.50	2.80	3.60	5.00	6.40
	Nickel plated	each		2.30	2.50	2.65	2.80	3.20	4.00	5.60	6.95



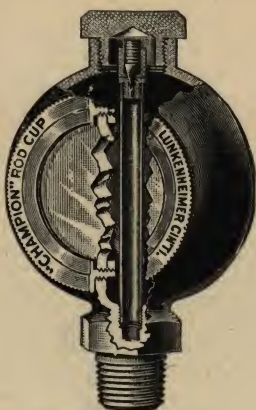
"Sentinel"



"Cardinal"



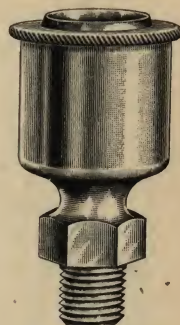
"Sentinel," Elbow Shank



"Champion" Rod Cup



Loose Pulley Oiler



Plain Oil Cup

"Champion" Rod Oil Cups

Number	1	2	3	3½	4
Finished brass	1.40	2.00	2.60	3.50	4.00
Nickel plated	1.50	2.20	2.80	3.85	4.40
Capacity	1½	2½	5	8	12
Outside diameter	2	2½	3	3½	4
Shank, pipe thread	½	¾	¾	¾	¾
Extra glasses	.05	.08	.10	.12	.15
Extra corks	.20	.30	.40	.50	.60

This cup starts to feed as soon as machinery is put in motion. Stops feeding when machinery stops. Excellent for crank pins.

Loose Pulley Oilers

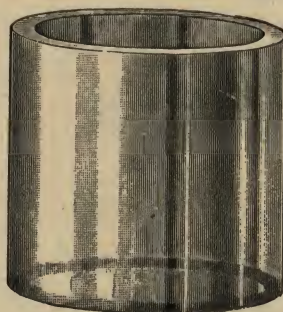
Number	0	1	2	3	4
Outside diameter	1	1½	1½	1½	2
Capacity	½	¾	¾	1½	1½
Rough Brass	.25	.30	.40	.50	.65

Shanks on Nos. 0, 1 and 2 are threaded ¾-inch on point, 16 threads to the inch.

Shanks on Nos. 3 and 4 are threaded ¼-inch pipe thread.

Plain Brass Oil Cups

Outside diameter	¾	¾	¾	1	1½	1½	1½	1½	2	2½	2½
Pipe thread	¾	¾	¾	¾	¾	¾	¾	¾	¾	¾	¾
Finished brass	.25	.30	.35	.40	.60	.90	1.25	1.60	1.75	2.25	2.75



Cylindrical Oil Cup Glasses

Number	000	00	0	1	1½	2	3	4	5	6	8
Outside diameter	1	1½	1½	1½	1½	2	2½	2½	3	3½	4½
Height	¾	1	1½	1½	1½	1½	2½	2½	3	4	5
Price	.05	.06	.08	.10	.10	.12	.15	.25	.35	.65	1.50
Cork Washers	.15	.18	.24	.30	.36	.40	.45	.50	.60	.75	1.50



Fig. 499
Cross Drip Valve



Fig. 690
Straight Drip Valve



Fig. 500
Angle Drip Valve



Fig. 296
Corner Drip Valve



Fig. 688
Cross Sight-Feed
Valve



Fig. 501
Straight Sight Feed
Valve



Fig. 502
Angle Sight-Feed
Valve



Fig. 964
Corner Sight-Feed
Valve



Fig. 689
Cross Sight-Feed
Valve, with Union

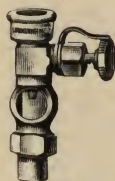


Fig. 593
Straight Sight-Feed
Valve, with Union



Fig. 594
Angle Sight-Feed
Valve, with Union



Fig. 965
Corner Sight-Feed
Valve, with Union



Fig. 503
Adjustable Wick
Wiper Cup



Fig. 504
Adjustable Wick
Wiper Cup
with Elbow Shank



Fig. 578
Adjustable Wiper
Cup for Crank Pin



Fig. 579
Adjustable Plain
Wiper Cup with
Elbow Shank



Fig. 505
Plain Wiper
Cup



Fig. 969
Adjustable Plain
Wiper Cup
With Straight
Shank



Fig. 552
Horizontal Wick
Wiper Tip



Fig. 506
Oil Cup Wiper
Tip



Fig. 507
Drip Trough

Oiling Devices

Above are shown some of the various styles of oiling devices which we can furnish. They are intended to be used in connection with brass pipe and fittings, and arranged to oil all of the bearings of an engine from one or more centrally located oil cups of large size. We can make any kind of oiling device, but owing to the variety of conditions attending their application, we would request parties, when writing regarding these goods, to give us, if possible, a sketch showing dimensions and style of engines for which device is required.

Sight-feed and drip valves are made in $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$ and $\frac{1}{2}$ -inch sizes. The size of the inlet pipe connection on sight-feed valves is the same as the outlet. Drip valve outlets are threaded for $\frac{1}{4}$ -inch O. D. Brass tubing, 27 threads. Unless otherwise ordered, sight-feed valves and wiping devices will be furnished with $\frac{3}{8}$ -inch pipe connections.

See following page for list prices.

Oiling Devices

SEE CUTS ON PREVIOUS PAGE

PRICE LIST

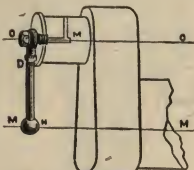
Size, Pipe Thread.....	Finished Brass. Each.		Nickel-plated. Each.	
	$\frac{1}{8}$, $\frac{1}{4}$ or $\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{8}$, $\frac{1}{4}$ or $\frac{3}{8}$	$\frac{1}{2}$
Fig. 499, Cross Drip Valve	1.50	1.60	1.75	1.85
Fig. 690, Straight Drip Valve	1.25	1.40	1.50	1.65
Fig. 500, Angle Drip Valve	1.25	1.40	1.50	1.65
Fig. 296, Corner Drip Valve	1.50	1.60	1.75	1.85
Fig. 501, Straight Sight-feed Valve	2.30	3.20	2.60	3.50
Fig. 502, Angle Sight-feed Valve	2.00	3.00	2.25	3.25
Fig. 664, Corner Sight-feed Valve	2.00	3.00	2.25	3.25
Fig. 680, Cross Sight-feed Valve	2.30	3.20	2.60	3.50
Fig. 593, Straight Sight-feed Valve with Union	2.80	3.70	3.10	4.00
Fig. 594, Angle Sight-feed Valve with Union	2.50	3.50	2.80	3.80
Fig. 665, Corner Sight-feed Valve with Union	2.50	3.50	2.80	3.80
Fig. 969, Adjustable Plain Wiper Cup, Straight Shank	2.80	3.70	3.10	4.00
Fig. 579, Adjustable Plain Wiper Cup, Elbow Shank	2.50	3.00	3.00	3.50
Fig. 503, Adjustable Wiper Cup for Wick, Straight Shank	3.00	3.50	3.50	4.00
Fig. 504, Adjustable Wiper Cup for Wick, Elbow Shank	2.50	3.00	3.00	3.50
Fig. 578, Adjustable Crankpin Wiper Cup	3.00	3.50	3.50	4.00
Fig. 552, Horizontal Wick Wiper Tip	2.50	3.00	3.00	3.50
Fig. 506, Wiper Tips	2.00	2.30	2.30	2.60
	.40	.50	.50	.60

Fig. 505. Plain Wiper Cup.

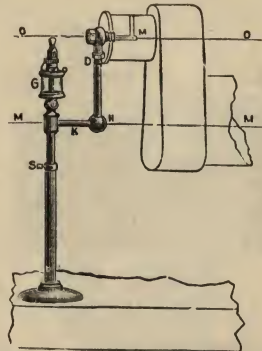
Pipe Thread.	O. Diam.	Brass.	Nickel Plated.
$\frac{1}{4}$	$1\frac{1}{4}$	1.00	1.20
$\frac{3}{8}$	$1\frac{1}{2}$	1.50	1.75
$\frac{1}{2}$	2	2.60	3.00

Fig. 507. Drip Troughs.

Length.	Pipe Thread.	Rough.	Finished.	Nickel Plated.
3"	$\frac{1}{4}$	.75	1.00	1.25
5"	$\frac{3}{8}$	1.50	2.00	2.50
7"	$\frac{1}{2}$	1.75	2.25	3.00
9"	$\frac{1}{2}$	2.00	2.75	3.50



Plain Oiler Arm



Oiler Arm Complete with Floor Stand and Oil Cup

Adjustable Centrifugal Crank-Pin Oilers

In ordering, give stroke of engine and distance from center of crank shaft to floor.

Number	1	2	3
Length of stroke	Up to 16 inches	Up to 30 inches	Up to 60 inches
Thread on bolt (O)	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{2}$
Plain oiler arm, brass	6.00	7.00	9.00
Plain oiler arm, nickel plated	7.00	8.00	11.00
Complete, brass	15.00	17.00	21.00
Complete, nickel plated	18.00	20.50	25.00

The oiler arm complete is provided with an adjustable sight-feed oil cup of proportionate size.



"Ideal" Grease Cups



"Marine" Grease Cups



"Ideal" Automatic Grease Cups

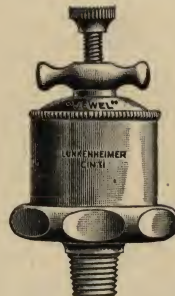
Number	00	0	1	2	3	4	5
Inside diameter	$\frac{7}{8}$	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$
Pipe thread	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$
Capacity (grease)	1	$1\frac{1}{2}$	3	6	10	18	18
Finished brass	each 1.50	2.00	2.50	3.20	4.30	6.00	12.50
Nickel plated	each 1.75	2.25	2.80	3.60	5.00	6.75	13.80

"Marine" Screw Feed Grease Cups

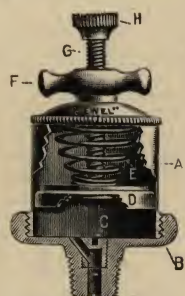
Number	00	0	1	2	3	4	5
Inside diameter	$\frac{7}{8}$	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	$2\frac{3}{4}$	$3\frac{1}{2}$
Pipe thread	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$
Capacity (grease)	1	$1\frac{1}{2}$	3	6	10	18	18
Finished brass	each 1.00	1.20	1.60	2.00	2.80	4.00	7.00
Nickel plated	each 1.20	1.45	1.90	2.40	3.40	4.75	8.20



"Lion" Grease Cup



"Jewel" Grease Cups



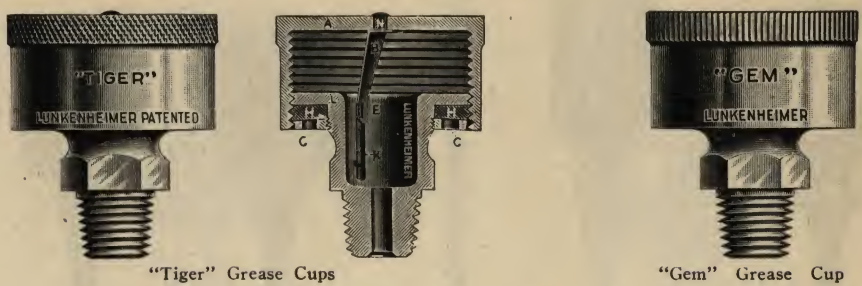
"Lion" Automatic Grease Cups

Number	00	0	1	2	3	4	5
Inside diameter	$\frac{7}{8}$	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	$2\frac{3}{4}$	$3\frac{1}{2}$
Pipe thread	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$
Capacity (grease)	1	$1\frac{1}{2}$	3	6	10	18	18
Finished brass	each 1.50	2.00	2.50	3.20	4.30	6.00	12.50
Nickel plated	each 1.75	2.25	2.80	3.60	5.00	6.75	13.80

The "Lion" grease cup is similar to the "Ideal," excepting that it has a cup leather plunger and screws together at the base instead of at the top.

"Jewel" Automatic Grease Cups

Number	00	0	1	2	3	4
Inside diameter	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Pipe thread	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
Capacity (grease)	1	$1\frac{1}{2}$	3	6	10	18
Finished brass	each .80	1.00	1.30	1.70	2.30	3.20
Nickel plated	each 1.00	1.30	1.70	2.20	2.90	3.90



“Tiger” and “Gem” Grease Cups

Number	00	0	1	2	3	4
Inside diameter	$\frac{7}{8}$	$1\frac{1}{4}$	$1\frac{3}{4}$	$1\frac{7}{8}$	$2\frac{3}{8}$	$2\frac{7}{8}$
Pipe thread	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
Capacity (grease)	$\frac{1}{8}$	$\frac{1}{4}$	1	2	$3\frac{1}{2}$	5
“Tiger” Finished, Brass	.70	.90	1.15	1.50	2.15	2.90
“Tiger” Finished, Nickeled	.82	1.06	1.36	1.80	2.60	3.40
“Tiger” Rough	.56	.74	.96	1.28	1.76	2.30
“Gem” Finished Brass	.70	.90	1.15	1.50	2.15	2.90

The “Gem” Plain Brass Grease Cup was designed to meet the demand for a low-priced, all-finished brass cup. It is not provided with the spring lock arrangement, as in the “Tiger,” but the cup is well made throughout.

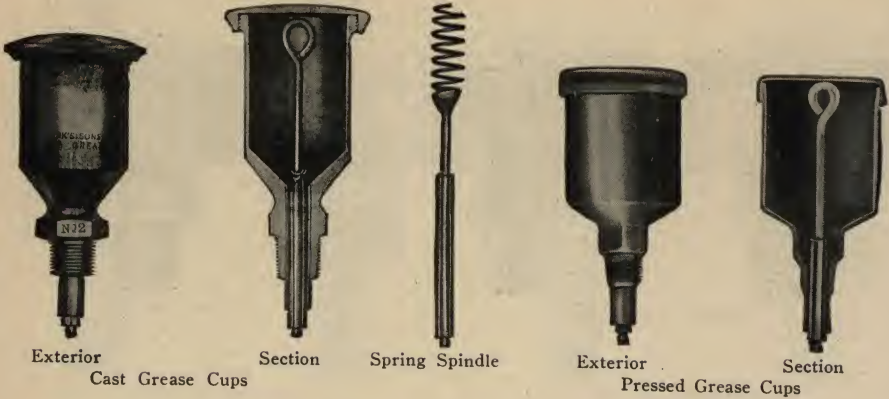


Steel Top Grease Cups

WITH MALLEABLE IRON CONICAL BASE

A great improvement over flat bottom cups. All grease fed out. No corners to catch and retain grease.

Number	00	0	1	2	3
Inside Diameter	$\frac{7}{8}$	$1\frac{1}{4}$	$1\frac{3}{4}$	2	$2\frac{3}{8}$
Inside Depth	$1\frac{1}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$
Capacity	$\frac{1}{8}$	$\frac{1}{4}$	1	2	$4\frac{1}{2}$
Pipe Thread	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{2}$
Price with Steel Top	.50	.60	.70	.80	1.30



Albany Cast Grease Cups

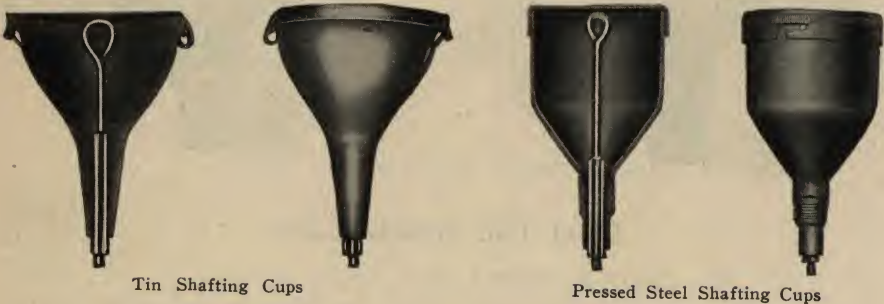
Number	1	2	3	4	5	6
Extreme outside diameter.....inches	2 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	2 $\frac{7}{8}$	3 $\frac{1}{4}$	3 $\frac{3}{4}$
Pipe thread.....inches	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$
Capacity (grease).....ounces	1	2	3 $\frac{1}{2}$	5 $\frac{1}{2}$	8	11 $\frac{1}{2}$
Finished brass.....each	1.00	1.50	2.25	3.00	4.00	5.00

This is a first-class, cast brass, highly finished, automatic spindle cup, a lasting and most economic cup, adapted for use on engine crank-pins, journals, shafting, etc.
It is provided with a soft copper spindle, which regulates the flow and feeds only when machinery is in motion. When applied to machinery having a high speed or jarring motion, request a spring spindle, and when used for crank-pin, state so.

Albany Pressed Grease Cups

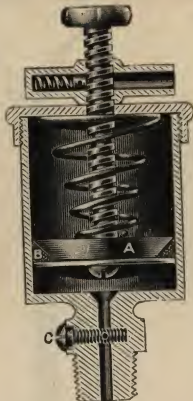
Number	00	0	1	2	3	4	5
Extreme outside diameter.....inches	1 $\frac{1}{2}$	1 $\frac{3}{8}$	1 $\frac{1}{2}$	2 $\frac{1}{4}$	2 $\frac{1}{2}$	3 $\frac{1}{4}$	3 $\frac{3}{4}$
Pipe thread.....inches	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$
Capacity (grease).....ounces	$\frac{1}{2}$	1	1 $\frac{1}{2}$	3	6	10	18
Rough steel.....each	.80	1.00	1.20	1.40	1.60	2.40	4.00
Finished brass.....each	1.20	1.40	1.60	1.80	2.00	3.00	5.00

These cups are pressed from sheet steel or brass. They will do the same work as the cast cups described above.

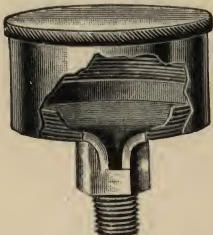


Albany Shafting Grease Cups

Number	Tin.			Number	Pressed Steel	
	1	2	3		1 $\frac{1}{2}$	2 $\frac{1}{2}$
Extreme outside diameter.....inches	2	2 $\frac{3}{4}$	3	Extreme outside diameter.....inches	2 $\frac{1}{2}$	3 $\frac{1}{2}$
Diameter tube.....inches	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	Pipe thread.....inches	$\frac{1}{4}$	$\frac{1}{2}$
Capacity (grease).....ounces	1 $\frac{1}{2}$	2	3 $\frac{1}{2}$	Capacity (grease).....ounces	5	10
Finished tin.....each	.35	.38	.47	Rough steel.....each	1.40	2.40



“Moon”



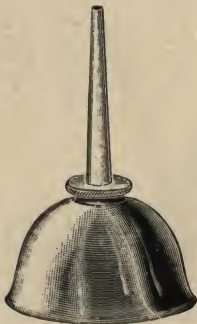
“Star”

“Moon” Automatic Grease Cups

Number	0	1	2	3	4	5
Inside diameter	$\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$2\frac{1}{2}$	3
Pipe thread	$\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{2}$
Capacity (grease)	$\frac{1}{2}$	1	$1\frac{1}{2}$	$2\frac{1}{2}$	$4\frac{1}{2}$	10
Finished brass	1.50	2.00	2.50	3.20	4.30	6.00
Nickel plated	1.75	2.25	2.80	3.60	5.00	6.75

“Star” Grease Cups

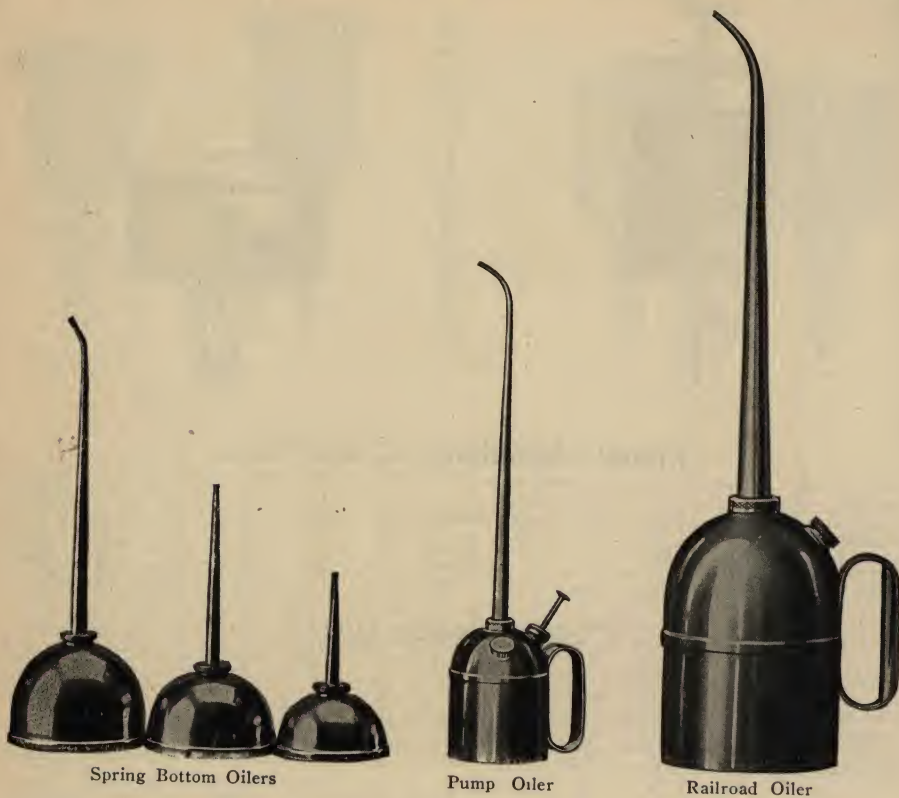
Number	0	1	2	3	4	5	6	7
Diameter	$\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	3	$3\frac{1}{2}$
Pipe thread	$\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{2}$
Finished brass	.70	.70	.90	1.15	1.50	2.15	2.90	5.50
Nickel plated	.90	.90	1.05	1.35	1.80	2.60	3.50	6.00
Rough	.60	.60	.80	1.05	1.35	1.80	2.80	4.50



One Piece “Eagle” Steel Oilers

Number	2004	2006	2009	3004	3006	3009	4004	4006	4009	5004	5006	5009
Solid steel	dozen	5.00	5.50	6.00	6.00	6.50	7.00	7.50	8.00	8.00	8.50	9.00
Diameter	inches	$3\frac{3}{4}$	$3\frac{3}{4}$	$3\frac{3}{4}$	$3\frac{3}{4}$	$3\frac{3}{4}$	$4\frac{1}{2}$	$4\frac{1}{2}$	$4\frac{1}{2}$	$4\frac{1}{2}$	$4\frac{1}{2}$	$4\frac{1}{2}$
Length of nozzle	inches	4"	6"	9"	4"	6"	9"	6"	9"	4"	6"	9"
Capacity	pint	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	1	1	1

No seams, no solder. Cannot leak. The oiler that lasts.



Spring Bottom Oilers

Number	12	13	13A	14	14A	14AA	14B	15	15A	16
Copperized steel	dozen	4.50	5.50	6.00	6.50	7.50	8.00	8.50	9.25	10.50
Nickel plated steel	dozen	6.50	8.00	8.75	9.20	10.00	10.75	11.25	12.00	14.00
Brass	dozen	6.50	8.00	8.75	9.20	10.20	10.75	11.20	12.00	14.00
Diameter	inches	2½	3½	3½	3½	3½	3½	4½	4½	4½
Length of spout	inches	2½	3	5	9	3	5	9	5	9
Capacity	pint	½	¾	¾	¾	¾	¾	1	1	1

Railroad Oilers

Number	10	11	100	101	111
Copperized steel	dozen	14.00	18.00	14.00	18.00
Nickel plated steel	dozen	18.00	21.00		20.00
Diameter	inches	3½	4½	3½	4½
Height	inches	5	6	6½	6
Length of spout	inches	12	18	9	12
Capacity	1 Pt.	1 Qt.	1 Pt.	1 Qt.	2 Qt.

Pump Oilers

Number	1000	2000	3000	4000
Copperized steel	dozen	30.00	40.00	50.00
Diameter	inches	3½	3½	4½
Length of spout	inches	9	12	15
Capacity	pint	1	1½	2



Tallow Pot

Filler

Engineers' Fillers

Number		19	19A	210	211
Copperized steel	dozen	14.00	17.00	20.00	24.00
Nickel plated steel	dozen		22.00	30.00	34.00
Brass	dozen		22.00	30.00	34.00
Diameter	inches	4½	4¾	5	6
Capacity		1 pt.	1½ pt.	1 qt.	2 qts.

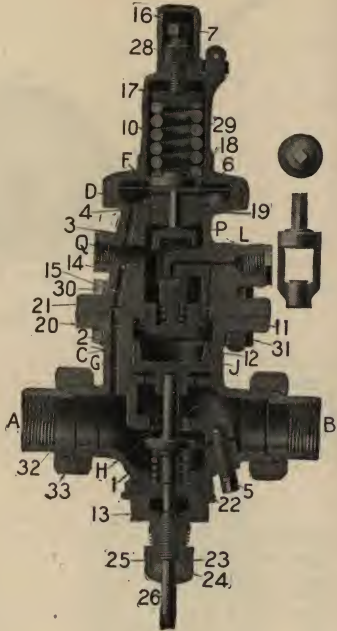
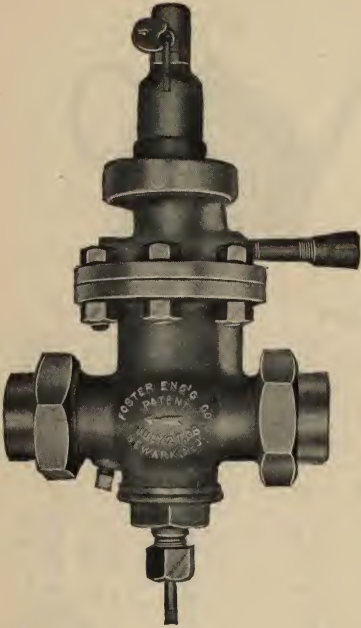
Tallow Pots

Number		212	218
Copperized steel	dozen	21.00	25.00
Nickel plated steel	dozen	32.00	36.00
Diameter	inches	5	6
Capacity		1 qt.	2 qts.



Engineers' Sets

Number		30	40	35	45
Copperized steel		5.00	7.00	7.00	10.00
Nickel plated steel		7.00	10.00	8.00	11.00
Brass		6.00	9.00	8.00	11.00
Number of pieces in set		5	6	5	6
Style of tray		Round	Round	Oval	Oval



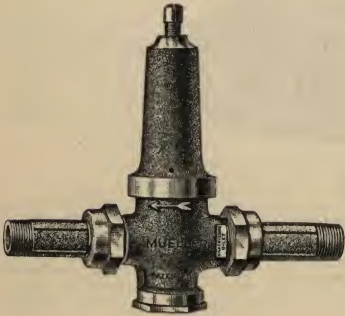
Foster Steam Pressure Regulator

This little device, originally designed to automatically control the speed of steam engines that are used to operate fans or blowers to secure induced draft, has also been found very effective in automatically controlling the supply of fuel oil to oil burners used under a steam boiler. This is done so exactly that we can guarantee the maintenance of boiler pressure through the use of this valve so that it will not vary to exceed two and one-half pounds either way from a given point. Under favorable conditions, in a flour mill in Kansas City, Missouri, we have made charts on a recording gage that showed a variation not to exceed one pound either way in a run of twenty-four hours.

If you are using Fuel Oil, you cannot afford to be without a Foster Regulator.
List price, $\frac{1}{2}$ " valve..... 50.00
Special descriptive circular mailed on application.

Oil Burning Outfits

We also furnish complete oil burning outfits, consisting of pumps, regulators, relief valves, pipe, fittings, valves, etc., Write for particulars.



Mueller Water Pressure Regulators

Size -----	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$
Price, Rough---	7.75	8.00	11.85	16.45	28.60	39.20	77.60

This Regulator will protect plumbing from fire pressure, prevent opening of self-closing work, stop excessive splashing of water in sinks and lavatories, deliver a low and uniform supply to the range boiler, reduce water hammer and strain when faucets are closed against the momentum of high pressure, and if the street main bursts it will close and retain the water in the building pipes, thus preventing the burning out of water backs and collapsing of range boilers.



No. 1



No. 2

Davis Pressure Regulators
FOR VARYING PRESSURES UP TO 200 POUNDS

Size	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3
No. 1 Regulator	20.00	20.00	22.00	24.00	25.00	30.00	35.00	40.00
No. 2 Regulator	25.00	25.00	27.00	29.00	30.00	36.00	42.00	48.00
Size	3 $\frac{1}{2}$	4	5	6	7	8	10	12
No. 1 Regulator	50.00	60.00	75.00	100.00	135.00	175.00	275.00	400.00
No. 2 Regulator	58.00	70.00	90.00	120.00	160.00	200.00	300.00	435.00

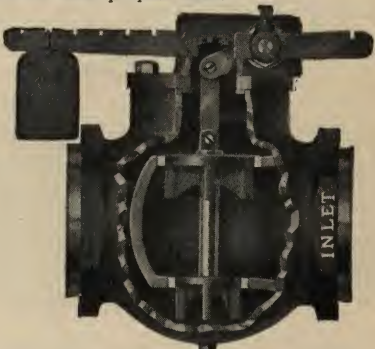
The No. 1 Regulator will reduce the initial pressure to any lower delivery pressure, and automatically maintain it regardless of fluctuations in the high pressure. Delivery Pressure may be as low as one pound.

The No. 2 Regulator is same as No. 1 except it has a dash pot to prevent the lever from jumping when delivery pressure is subject to pulsation. This regulator should be used where a variable demand for steam exists.

State Initial and Delivery Pressures when ordering, and for what purpose used.



Balanced Valve



Back Pressure Valve

Davis Balanced Valve With Lever
FOR VARYING PRESSURES UP TO 200 POUNDS

Size	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4	5	6
Balanced Valve	6.50	6.50	8.00	9.50	11.00	14.00	19.00	25.00	30.00	35.00	45.00	55.00

This valve may be used for controlling steam, air, water or gas. It is used largely as a water inlet valve on feed-water heaters, as a shut-off valve on open tanks, and as a quick opening and closing valve.

Davis Noiseless Back Pressure Valves
FOR NON-CONDENSING ENGINES ONLY

Size	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4	4 $\frac{1}{2}$	5	6	7	8	9	10
Back Pressure Valve	14.00	16.00	18.00	22.00	25.00	30.00	40.00	60.00	80.00	100.00	120.00	145.00

The above valve is used on the exhaust line of a non-condensing engine for maintaining a given back pressure of steam for heating, drying or other purposes. Can be used in either a horizontal or vertical position.



Standard—Class A



Standard—Class B



Spring—Class A

Gardner Standard Governors MEDIUM SPEED

Size	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$	3	$3\frac{1}{4}$	4	$4\frac{1}{2}$	5	6	8
Class A, plain			24.50	29.50	36.00	42.00	48.00	59.00	71.00	83.00	96.00	109.00	140.00	210.00
Class A, finished			27.50	33.50	40.00	47.00	53.00	67.00	80.00	93.00	107.00	121.00	154.00	227.00
Class B, plain	16.00	18.00	21.00	25.00	30.00	35.00	40.00	50.00	60.00	71.00	83.00	94.00	122.00	185.00
Class B, finished	18.00	20.00	24.00	29.00	34.00	40.00	45.00	58.00	69.00	81.00	94.00	106.00	136.00	202.00
Diam. of Pulley	2	2	3	3	5	5	5	$5\frac{1}{2}$	$5\frac{1}{2}$	6	6	7	7	11
Width of Belt	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	2	2	2	2	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	3	3	3
Revolutions	300	300	250	250	200	200	200	170	170	160	160	150	150	130

Class A is with Automatic Stop, and Class B is without Automatic Stop.

The Automatic Stop will close valve and stop engine if governor belt breaks or slips off the pulley.

Gardner Spring Governors HIGH SPEED

Size	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$	3	$3\frac{1}{4}$	4	$4\frac{1}{2}$	5	6
Class A, plain		18.50	21.00	24.50	29.50	36.00	42.00	48.00	59.00	71.00	83.00	96.00	109.00
Class A, finished		20.50	23.00	27.50	33.50	40.00	47.00	53.00	67.00	80.00	93.00	107.00	121.00
Class B, plain	14.00	16.00	18.00	21.00	25.00	30.00	35.00	40.00	50.00	60.00	71.00	83.00	94.00
Class B, finished	16.00	18.00	20.00	24.00	29.00	34.00	40.00	45.00	58.00	69.00	81.00	94.00	106.00
Diam. of Pulley	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	2	$2\frac{1}{4}$	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$3\frac{1}{4}$	$3\frac{1}{4}$	$4\frac{1}{2}$	$4\frac{1}{2}$	$4\frac{1}{2}$
Width of Belt	1	1	1	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	2	2	2	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$
Revolutions	600	600	600	450	400	400	400	350	350	350	275	275	275

Class A. is with Automatic Stop, and Class B is without Automatic Stop.

This governor is recommended for traction and high speed stationary engines.



E

F

G

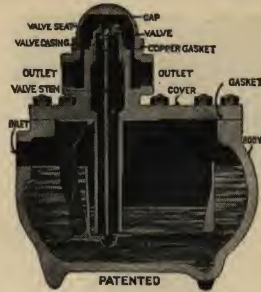
H

I

In ordering governors, give letter under style of Valve Chamber wanted.

Governor Repairs

In ordering repairs for governors, always give the shop number. On Standard Governors it will be found stamped on the side of the head; on Spring Governors it will be found upon the flange of the frame.



Squires Improved Steam Traps

This trap is distinguished by the ready access to the few working parts, low cost of maintenance, great capacity, great durability and high efficiency. It is of the intermittent type, the valve being either tightly closed or wide open, thus eliminating wire drawing. Access to the valve and seat is readily gained without interfering with any pipe connections. This trap has two outlets and two blow-off connections. The pipe connections can be made on either side, leaving the other side plugged.

The regular traps are furnished with valves for varying pressures to and including 200 pounds. The unlimited pressure trap is of large capacity for high pressures, but works equally well at all pressures up to 300 pounds. The big discharge valve is especially adapted for difficult condensation problems, or where "slugs" of water from foaming boilers flood the trap at intervals.

WITH REGULAR VALVE AND SEAT

Size	A	B	C	D	E	F	G
Price	20.00	22.00	28.00	35.00	50.00	70.00	100.00
Pipe connection	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$
Capacity, lineal feet of 1 inch pipe	4350	6300	9300	16500	28200	40800	98100
Capacity, square feet of radiation	1450	2100	3100	5500	9400	13600	32700
Capacity, pounds of water per hour	450	650	950	1700	2900	4200	10100

WITH UNLIMITED PRESSURE VALVE MECHANISM

Size	A	B	C	D	E	F	G
Price	24.00	27.00	34.00	42.00	60.00	84.00	120.00
Pipe connection	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$
Capacity, pounds of water per hour	800	1400	2700	3800	5500	10000	20000

NOTE—In ordering, state highest pressure under which trap is to be operated.



Nason



Davis

Nason Steam Traps

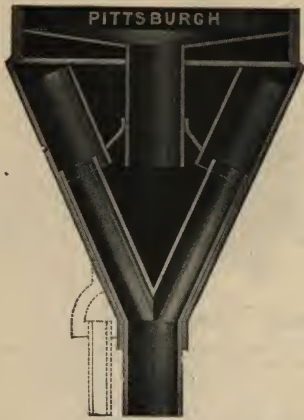
FOR VARYING PRESSURES UP TO 70 POUNDS

Number	1	2	3	4	5
Price	16.00	20.00	27.50	42.50	70.00
Size of pipe connections	$\frac{3}{4}$ "	1"	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "
Diameter outside of flanges	10 $\frac{1}{2}$ "	14 $\frac{1}{2}$ "	15 $\frac{1}{2}$ "	18"	24 $\frac{1}{2}$ "
Height to top of valve	11"	14"	16 $\frac{1}{2}$ "	18 $\frac{1}{2}$ "	23 $\frac{1}{2}$ "
Capacity, square feet of surface	350	900	1400	2000	3500
Capacity, lineal feet of 1 inch pipe	1050	2700	4200	6000	10500

Davis Steam Traps

FOR VARYING PRESSURES UP TO 200 POUNDS

Number	00	0	1	2	3	4	5	6
Price	15.00	20.00	30.00	45.00	60.00	80.00	100.00	125.00
Size of inlet and outlet	$\frac{1}{2}$ "	$\frac{3}{4}$ "	1"	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	2"	2 $\frac{1}{2}$ "	3"
Capacity, sq. ft. of radiating surface	500	1000	2175	5000	6675	10000	13350	20000
Capacity, lineal feet of 1 inch pipe	1500	3000	6500	15000	20000	30000	40000	60000



Pittsburgh



Lyman

Exhaust Pipe Heads

Size Exhaust Pipe.....	1	1½	2	2½	3	3½	4	4½	5	6
Drip Outlet	¾	¾	¾	¾	¾	¾	1	1	1	1½
Pittsburgh	20.00	20.00	25.00	25.00	30.00	30.00	40.00	40.00	50.00	60.00
Lyman	20.00	20.00	25.00	25.00	30.00	30.00	40.00	40.00	50.00	60.00
Size Exhaust Pipe.....	7	8	9	10	12	13	14	15	16	18
Drip Outlet	1½	1½	1½	1½	2	2	2	2	2	2
Pittsburgh	75.00	90.00	105.00	125.00	150.00	175.00	200.00	235.00	250.00	300.00
Lyman	75.00	90.00	105.00	125.00	150.00	175.00	200.00	235.00	250.00	300.00

Completely stops the emission of water and grease from outlet of exhaust pipe, which is so damaging to roofs, walls, etc. Steam escapes dry. No back pressure.



Horizontal



Vertical



Horizontal

Gardner Horizontal Steam Separators

Size	2	2½	3	3½	4	4½	5	6	7	8	10	12
Horizontal	40.00	45.00	50.00	60.00	70.00	75.00	80.00	110.00	125.00	160.00	220.00	250.00
Distance Between Flanges.....	10	10	12	12	14	14	15	18	21	21	27	28
Center Flanges to Bottom.....	12½	12½	15½	15½	16½	16½	19	21	24	24	30	32

Gardner Vertical Steam Separators

Size	2	2½	3	3½	4	4½	5	6	7	8	10	12
Vertical	40.00	45.00	50.00	60.00	70.00	75.00	80.00	110.00	125.00	160.00	220.00	250.00
Distance Between Flanges.....	14½	14½	17½	17½	21	21	25	25	32	32	39½	47
Largest Diameter	8	8	10	10	12	12	15½	15½	18½	18½	24½	32½

Steam separators will stand 200 lbs. working pressure, and are furnished with companion flanges and bolts, water gage and outlet valve.



Horizontal



Vertical

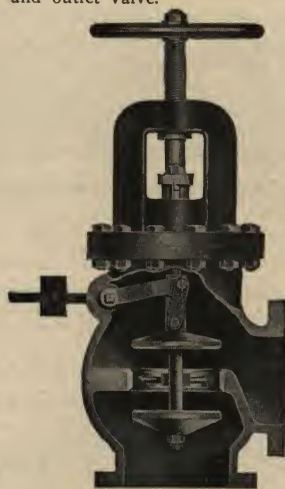
Pittsburgh Horizontal Steam Separators

Size	2	2½	3	3½	4	4½	5	6	7	8	10	12
Horizontal	40.00	45.00	50.00	60.00	70.00	75.00	80.00	110.00	125.00	160.00	220.00	250.00
Distance Between Flanges	6½	9½	10	12½	12½	14½	14½	17½	18½	20½	26	30½
Center Flanges to Bottom	9½	12½	13½	15½	15½	18½	18½	21	23	24½	30	34

Pittsburgh Vertical Steam Separators

Size	2	2½	3	3½	4	4½	5	6	7	8	10	12
Vertical	40.00	45.00	50.00	60.00	70.00	75.00	80.00	110.00	125.00	160.00	220.00	250.00
Distance Between Flanges	18	22½	22½	26½	26½	30½	30½	34½	39	44	49	54
Largest Diameter	7½	9	9	12	12	13	13	15	17	19	22½	26

Steam Separators are tested to 250 pounds Hydrostatic Pressure, and furnished with Companion Flanges and bolts, water gage and outlet valve.



Lagonda

Lagonda Automatic Cut-Off Valves

If a tube in one of the boilers should give away, the automatic valve shuts down that boiler only and allows all the other boilers in the battery or station to go on supplying steam as usual, and the fireman need not scald himself trying to close a valve of the ordinary type. When the injured boiler has cooled off sufficiently, a man can safely go inside to repair the damage, as the cut-off valve will stay closed until the pressure is raised. On the other hand, if a steam boiler bursts, or a joint breaks, or a cylinder head blows off the engine, the cut-off valves on every boiler close before the room can be filled with steam, and repairs can be made at once.

Size	3	4	5	6	7	8	10	12
Semi-steel, Flanged	55.00	60.00	70.00	80.00	90.00	100.00	125.00	175.00



Lippincott Engine Indicators

The above engraving shows a complete outfit for indicating steam and gas engines, hydraulic cylinders and ammonia compressors. The indicator is furnished with inside or exposed spring at the same price.

High Pressure Pattern Indicator with two springs, two one-way cocks (or one three-way cock), two cylinders and pistons ($\frac{1}{4}$ and $\frac{1}{2}$ -inch areas, interchangeable), cord, cards, scales, wrench, pencil points, and oil bottle, in hand polished, hardwood case, with heavy nickeled handle and trimmings. The $\frac{1}{2}$ -inch area piston is of the "frictionless" type. The $\frac{1}{4}$ -inch cylinder is of special alloy which is guaranteed to stand the action of ammonia. Case is large enough to contain reducing wheel.....	80.00
Special High-Pressure Pattern Indicator, with two springs, two one-way cocks (or one three-way cock), one cylinder, $\frac{1}{2}$ -inch area, cord, cards, pencils and oil bottle, in polished oak case large enough to contain reducing wheel.....	65.00
Simplex Pattern Indicator, with one spring, one cock, cord, cards, and scale, in durable oak case. This indicator is used largely by engine builders and erecting engineers.....	50.00
Three-way cock in place of one-way, 2.50 extra, net.	
Improved Lippincott Aluminum Reducing Wheel to fit any Indicator, with all bushings and spring tension regulator.....	20.00
Cord "Take-Up Device".....	5.00
Improved Lippincott Planimeter.....	27.00
Improved Simplex Planimeter.....	15.00
High-Pressure Pattern Three-way Cocks, polished brass or nickel plated, to fit any Indicator.....	7.00
One-Way Cocks, to fit any Indicator.....	3.00
Piston-Springs for above Indicators, Nos. 8, 10, 12, 16, 20, 30, 40, 50, 60, 70, 80 and 100, each.....	6.00
Printed cards, per hundred, by mail.....	.80



Expansion Steel Wire Flue Brushes

Outside Diam. Flues---	1	1½	1¾	2	2½	3	3½	4	6
Price -----	2.00	2.00	2.00	2.00	2.50	3.00	3.50	4.00	6.00



Combination Flue Brush and Scraper

Outside Diam. Flues---	2	2½	3	3½	4	6
Price -----	2.00	2.50	3.00	3.50	4.00	6.00



Engineers' Favorite Flue Cleaners

Outside Diam. Flues---	1½	2	2½	3	3½	4	6
Price -----	2.00	2.00	2.50	3.00	3.50	4.00	6.00



Elliptical Flue Cleaners

Outside Diam. Flues---	1½	1¾	2	2½	3	3½	4	6
Price -----	2.00	2.00	2.00	2.50	3.00	3.50	4.00	6.00



Cleveland Steam Flue Cleaners

Number	Price of Cleaner Only	Size of Tubes Inside Diameter	Diameter of Hose Required
1	7.00	1" to 1½"	¾"
2	8.00	1½" to 2½"	1"
3	9.00	2½" to 3½"	1½"
4	10.00	3½" to 4"	1"
5	12.00	4½" to 8"	1"
6	15.00	8½" to 16"	1½"



Magic Steam Flue Cleaners

The Magic is provided with an automatic valve for shutting off the steam when cleaner is changed from one flue to another, thus avoiding the blowing of soot in operator's face.

Number	Price of Cleaner with Clamps and Nipple Only	Size of Tubes Outside Diameter	Size of Hose Required
1	5.00	2" to 2½"	¾"
2	6.25	2½" to 2¾"	1"
3	7.50	3" to 3½"	1"
4	8.75	3½" to 3¾"	1"
5	10.00	4" to 4½"	1½"
6	12.50	5" to 6"	1½"



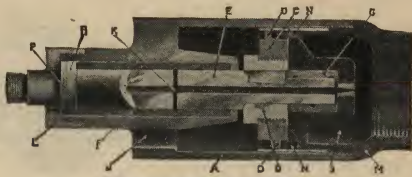
Faries' Flue Cleaners

Size	2	2½	3	3½	4	5
Scraper	2.00	2.25	2.50	2.75	3.00	3.25
Ram				.50	.50	.50
Scraper with Ram				3.25	3.50	3.75
Size	3½	4	4½	5	5½	6
Scraper	3.50	4.00	5.00	5.50	6.00	6.50
Ram	.50	.50	.75	.75	.75	.75
Scraper with Ram	4.00	4.50	5.75	6.25	6.75	7.25
Scraper for Water Tube Boilers	5.00	5.65	7.20			

Scrapers will be sent with Ram unless otherwise ordered.



Ball Bearing Turbine



Thrust Bearing Turbine

Weinland Ball Bearing Turbine Tube Cleaners

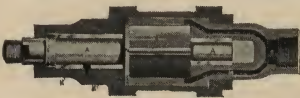
This water turbine is best adapted for medium conditions of scale. The thrust is taken up by the highest grade balls working in ground, carefully tempered races.

No. 29 For 2 " straight tubes.....	40.00
No. 30 For 2½" straight tubes.....	40.00
No. 71 For 3 " straight and 3¾" curved tubes.....	40.00
No. 72 For 3½" straight tubes.....	50.00
No. 73 For 4 " straight tubes.....	50.00

Weinland Thrust Bearing Turbine Tube Cleaners

The thrust bearing water turbines are the most durable and powerful cleaners ever built. They will stand the hardest kind of usage, and are suitable for high pressure work.

No. 52 For 2 " straight tubes.....	50.00
No. 53 For 2½" straight tubes.....	50.00
No. 64 For 3 " straight and 3¾" curved tubes.....	60.00
No. 65 For 3½" straight tubes.....	75.00
No. 66 For 4 " straight tubes.....	75.00



Steam or Air Driven Cleaner



Fire Tube Cleaner

Weinland Steam or Air Driven Tube Cleaners

Use this turbine when you have no water available for running a turbine cleaner.

No. 57 For 2 " straight tubes.....	60.00
No. 58 For 2½" straight tubes.....	60.00
No. 59 For 3 " straight and 3¾" curved tubes.....	60.00
No. 60 For 3½" straight tubes.....	75.00
No. 61 For 4 " straight tubes.....	75.00

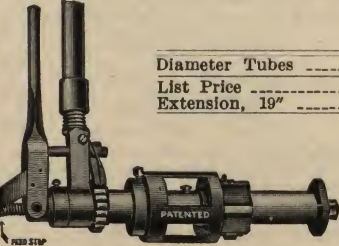
Weinland Fire Tube Cleaners

This is steam or air driven. The knocker revolves and hits all parts of the tube. It is not necessary to twist the machine.

For 2", 2½" and 3" tubes.....	60.00
For 3½" and 4" tubes.....	75.00

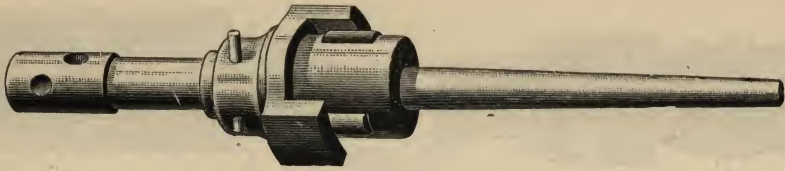
Ideal Self-Feed Tube Cutters

This machine will cut off tubes inside or outside the boiler-head, leaving them beveled ready for beading. Of the simplest and strongest steel construction.



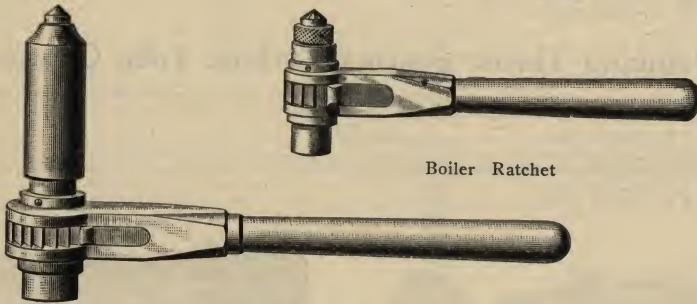
Diameter Tubes	2	2½	3	3½	3¾	4	6
List Price	14.00	14.00	20.00	20.00	22.00	22.00	32.00
Extension, 19"	3.80	3.80	4.50	4.50	4.50	4.50	7.00





Roller Tube Expanders

Diameter Tubes	1	1½	1¾	1¾	1¾	2	2½	2¾	2¾
Price	10.00	10.00	10.00	10.00	10.00	10.00	12.00	14.00	16.00
Diameter Tubes	3	3½	3¾	3¾	4	4½	4¾	5	6
Price	18.00	20.00	23.00	25.00	30.00	35.00	40.00	50.00	60.00



Boiler Ratchet

Sleeve Ratchet

Packer Sleeve and Boiler Ratchets

FOR TAPER SQUARE SHANK DRILLS

Number		1	2	3	4	5
Length of Handle	inches	10	12	15	17	20
Sleeve Ratchets	each	10.50	13.50	16.00	19.00	23.00
Boiler Ratchets	each	9.00	10.50	16.00		

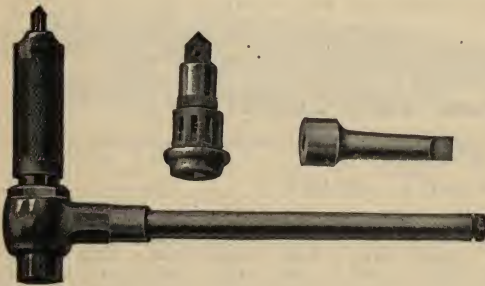
Keystone Reversible Ratchets

COMBINATION No. 200

Consists of Ratchet for taper shank twist drills, Sleeve for square shank drills, and short Boiler Socket for square shank drills.
(Sockets Interchangeable)

PRICE

No. 51.	Combination complete with 10-inch handle	7.75
No. 52.	Combination complete with 14-inch handle	9.00
No. 53.	Combination complete with 16-inch handle	10.00
No. 54.	Combination complete with 18-inch handle	11.25
No. 55.	Combination complete with 22-inch handle	11.50
No. 56.	Combination complete with 24-inch handle	11.75
No. 57.	Combination complete with 28-inch handle	12.25



The bore of socket for 10-inch Ratchet is No. 2 Taper, taking drills up to 29-32 of an inch.
The bore of socket for 14 and 16-inch Ratchets is No. 3 Taper, taking drills up to 1½ inches.
The bore of socket for 18 to 28-inch Ratchets is No. 4 Taper, taking drills up to 2 inches.
The socket for 10-inch Ratchet takes No. 1 Morse taper sleeve.
The socket for 14 and 16-inch Ratchets takes No. 2 Morse taper sleeve.
The socket for 18 to 28-inch Ratchets takes No. 3 Morse taper sleeve.



Taper Shank Twist Drills

Diam.	Each	Length	Diam.	Each	Length	Diam.	Each	Length	Diam.	Each	Length
$\frac{1}{16}$	.35	$3\frac{1}{2}$	$\frac{1}{8}$	2.15	10	$\frac{1}{4}$	6.30	$15\frac{1}{2}$	$2\frac{1}{4}$	13.20	$17\frac{1}{2}$
$\frac{3}{16}$	.40	$4\frac{1}{2}$	$\frac{1}{8}$	2.15	10	$\frac{1}{4}$	6.60	$15\frac{1}{2}$	$2\frac{1}{4}$	13.20	$17\frac{1}{2}$
$\frac{1}{4}$	.40	$4\frac{1}{2}$	$\frac{1}{8}$	2.30	$10\frac{1}{2}$	$\frac{1}{4}$	6.60	$15\frac{1}{2}$	$2\frac{1}{4}$	13.60	$17\frac{1}{2}$
$\frac{5}{16}$	.45	$4\frac{1}{2}$	$\frac{1}{8}$	2.30	$10\frac{1}{2}$	$\frac{1}{4}$	6.90	$15\frac{1}{2}$	$2\frac{1}{4}$	13.60	$17\frac{1}{2}$
$\frac{3}{8}$	.45	$5\frac{1}{2}$	$\frac{1}{8}$	2.45	$10\frac{1}{2}$	$\frac{1}{4}$	6.90	$15\frac{1}{2}$	$2\frac{1}{4}$	14.00	18
$\frac{7}{16}$	.45	$5\frac{1}{2}$	$\frac{1}{8}$	2.45	$10\frac{1}{2}$	$\frac{1}{4}$	7.20	$15\frac{1}{2}$	$2\frac{1}{4}$	14.00	18
$\frac{1}{2}$	.45	$5\frac{1}{2}$	$\frac{1}{8}$	2.60	$10\frac{1}{2}$	$\frac{1}{4}$	7.20	$15\frac{1}{2}$	$2\frac{1}{4}$	14.40	18
$\frac{9}{16}$	.50	$5\frac{1}{2}$	$\frac{1}{8}$	2.60	$10\frac{1}{2}$	$\frac{1}{4}$	7.50	$15\frac{1}{2}$	$2\frac{1}{4}$	14.40	18
$\frac{5}{8}$	.50	$5\frac{1}{2}$	$\frac{1}{8}$	2.75	$10\frac{1}{2}$	$\frac{1}{4}$	7.50	$15\frac{1}{2}$	$2\frac{1}{4}$	14.70	$18\frac{1}{2}$
$\frac{3}{4}$	.55	6	$\frac{1}{8}$	2.75	$10\frac{1}{2}$	$\frac{1}{4}$	7.80	$15\frac{1}{2}$	$2\frac{1}{4}$	14.70	$18\frac{1}{2}$
$\frac{7}{8}$	.55	6	$\frac{1}{8}$	2.90	$10\frac{1}{2}$	$\frac{1}{4}$	7.80	$15\frac{1}{2}$	$2\frac{1}{4}$	15.00	$18\frac{1}{2}$
1	.60	$6\frac{1}{2}$	$\frac{1}{8}$	2.90	$10\frac{1}{2}$	$\frac{1}{4}$	8.10	$15\frac{1}{2}$	$2\frac{1}{4}$	15.00	$18\frac{1}{2}$
$1\frac{1}{8}$	.60	$6\frac{1}{2}$	$\frac{1}{8}$	3.00	11	$\frac{1}{4}$	8.10	$15\frac{1}{2}$	$2\frac{1}{4}$	15.30	19
$1\frac{1}{4}$	.65	$6\frac{1}{2}$	1	3.00	11	$\frac{1}{4}$	8.40	16	$2\frac{1}{4}$	15.30	19
$1\frac{3}{8}$	.65	$6\frac{1}{2}$	$1\frac{1}{8}$	3.20	$11\frac{1}{2}$	$\frac{1}{4}$	8.40	16	$2\frac{1}{4}$	15.60	19
$1\frac{1}{2}$	.70	$6\frac{1}{2}$	$1\frac{1}{8}$	3.20	$11\frac{1}{2}$	$\frac{1}{4}$	8.60	$16\frac{1}{2}$	$2\frac{1}{4}$	15.60	19
$1\frac{3}{4}$	.70	$6\frac{1}{2}$	$1\frac{1}{8}$	3.40	$11\frac{1}{2}$	$\frac{1}{4}$	8.60	$16\frac{1}{2}$	$2\frac{1}{4}$	15.90	$19\frac{1}{2}$
2	.75	$6\frac{1}{2}$	$1\frac{1}{8}$	3.40	$11\frac{1}{2}$	$\frac{1}{4}$	8.80	$16\frac{1}{2}$	$2\frac{1}{4}$	15.90	$19\frac{1}{2}$
$2\frac{1}{8}$	.75	$6\frac{1}{2}$	$1\frac{1}{8}$	3.60	$11\frac{1}{2}$	$\frac{1}{4}$	8.80	$16\frac{1}{2}$	$2\frac{1}{4}$	16.20	$19\frac{1}{2}$
$2\frac{1}{4}$	.80	$6\frac{1}{2}$	$1\frac{1}{8}$	3.60	$11\frac{1}{2}$	$\frac{1}{4}$	9.00	$16\frac{1}{2}$	$2\frac{1}{4}$	16.20	$19\frac{1}{2}$
$2\frac{3}{8}$	.80	$6\frac{1}{2}$	$1\frac{1}{8}$	3.80	$11\frac{1}{2}$	$\frac{1}{4}$	9.00	$16\frac{1}{2}$	$2\frac{1}{4}$	16.50	$19\frac{1}{2}$
$2\frac{1}{2}$	.85	7	$1\frac{1}{8}$	3.80	$11\frac{1}{2}$	$\frac{1}{4}$	9.20	$16\frac{1}{2}$	$2\frac{1}{4}$	16.50	$19\frac{1}{2}$
$2\frac{7}{8}$	.85	7	$1\frac{1}{8}$	4.00	$11\frac{1}{2}$	$\frac{1}{4}$	9.20	$16\frac{1}{2}$	$2\frac{1}{4}$	16.80	$19\frac{1}{2}$
3	.90	$7\frac{1}{2}$	$1\frac{1}{8}$	4.00	$11\frac{1}{2}$	$\frac{1}{4}$	9.35	$16\frac{1}{2}$	$2\frac{1}{4}$	16.80	$19\frac{1}{2}$
$3\frac{1}{8}$	.90	$7\frac{1}{2}$	$1\frac{1}{8}$	4.20	12	$\frac{1}{4}$	9.35	$16\frac{1}{2}$	$2\frac{1}{4}$	17.20	20
$3\frac{1}{4}$	.95	$7\frac{1}{2}$	$1\frac{1}{8}$	4.20	12	$\frac{1}{4}$	9.50	$16\frac{1}{2}$	$2\frac{1}{4}$	17.20	20
$3\frac{3}{8}$	.95	$7\frac{1}{2}$	$1\frac{1}{8}$	4.40	$12\frac{1}{2}$	$\frac{1}{4}$	9.50	$16\frac{1}{2}$	$2\frac{1}{4}$	17.60	20
$3\frac{1}{2}$	1.00	$7\frac{1}{2}$	$1\frac{1}{8}$	4.40	$12\frac{1}{2}$	$\frac{1}{4}$	9.65	$16\frac{1}{2}$	$2\frac{1}{4}$	17.60	20
$3\frac{7}{8}$	1.00	$7\frac{1}{2}$	$1\frac{1}{8}$	4.50	$12\frac{1}{2}$	$\frac{1}{4}$	9.65	$16\frac{1}{2}$	$2\frac{1}{4}$	18.30	$20\frac{1}{2}$
4	1.10	8	$1\frac{1}{8}$	4.50	$12\frac{1}{2}$	$\frac{1}{4}$	9.80	$16\frac{1}{2}$	$2\frac{1}{4}$	18.30	$20\frac{1}{2}$
$4\frac{1}{8}$	1.10	8	$1\frac{1}{8}$	4.65	$14\frac{1}{2}$	$\frac{1}{4}$	9.80	$16\frac{1}{2}$	$2\frac{1}{4}$	19.00	$20\frac{1}{2}$
$4\frac{1}{4}$	1.20	$8\frac{1}{2}$	$1\frac{1}{8}$	4.65	$14\frac{1}{2}$	$\frac{1}{4}$	10.20	$16\frac{1}{2}$	$2\frac{1}{4}$	19.00	$20\frac{1}{2}$
$4\frac{3}{8}$	1.20	$8\frac{1}{2}$	$1\frac{1}{8}$	4.80	$14\frac{1}{2}$	$\frac{1}{4}$	10.20	$16\frac{1}{2}$	$2\frac{1}{4}$	19.50	$20\frac{1}{2}$
$4\frac{1}{2}$	1.30	$8\frac{1}{2}$	$1\frac{1}{8}$	4.80	$14\frac{1}{2}$	$\frac{1}{4}$	10.60	17	$2\frac{1}{4}$	19.50	$20\frac{1}{2}$
$4\frac{7}{8}$	1.30	$8\frac{1}{2}$	$1\frac{1}{8}$	5.00	$14\frac{1}{2}$	$\frac{1}{4}$	10.60	17	$2\frac{1}{4}$	20.00	$20\frac{1}{2}$
5	1.40	$8\frac{1}{2}$	$1\frac{1}{8}$	5.00	$14\frac{1}{2}$	$\frac{1}{4}$	10.90	17	$2\frac{1}{4}$	20.00	$20\frac{1}{2}$
$5\frac{1}{8}$	1.40	$8\frac{1}{2}$	$1\frac{1}{8}$	5.20	$14\frac{1}{2}$	$\frac{1}{4}$	10.90	17	$2\frac{1}{4}$	20.50	21
$5\frac{1}{4}$	1.50	9	$1\frac{1}{8}$	5.20	$14\frac{1}{2}$	$\frac{1}{4}$	11.20	17	$2\frac{1}{4}$	20.50	21
$5\frac{3}{8}$	1.50	9	$1\frac{1}{8}$	5.40	$14\frac{1}{2}$	$\frac{1}{4}$	11.20	17	$2\frac{1}{4}$	21.00	21
$5\frac{1}{2}$	1.60	$9\frac{1}{2}$	$1\frac{1}{8}$	5.40	$14\frac{1}{2}$	$\frac{1}{4}$	11.60	17	$2\frac{1}{4}$	21.00	21
$5\frac{7}{8}$	1.60	$9\frac{1}{2}$	$1\frac{1}{8}$	5.60	$14\frac{1}{2}$	$\frac{1}{4}$	11.60	17	$2\frac{1}{4}$	22.00	21
6	1.70	$9\frac{1}{2}$	$1\frac{1}{8}$	5.60	$14\frac{1}{2}$	$\frac{1}{4}$	12.00	17	$2\frac{1}{4}$	22.00	21
$6\frac{1}{8}$	1.70	$9\frac{1}{2}$	$1\frac{1}{8}$	5.80	$14\frac{1}{2}$	$\frac{1}{4}$	12.00	17	$2\frac{1}{4}$	23.00	21
$6\frac{1}{4}$	1.85	$9\frac{1}{2}$	$1\frac{1}{8}$	5.80	$14\frac{1}{2}$	$\frac{1}{4}$	12.40	$17\frac{1}{2}$	$2\frac{1}{4}$	23.00	21
$6\frac{3}{8}$	1.85	$9\frac{1}{2}$	$1\frac{1}{8}$	6.00	15	$\frac{1}{4}$	12.40	$17\frac{1}{2}$	$2\frac{1}{4}$	24.00	22
$6\frac{1}{2}$	2.00	$9\frac{1}{2}$	$1\frac{1}{8}$	6.00	15	$\frac{1}{4}$	12.80	$17\frac{1}{2}$	$2\frac{1}{4}$	25.00	22
$6\frac{7}{8}$	2.00	$9\frac{1}{2}$	$1\frac{1}{8}$	6.30	$15\frac{1}{2}$	$\frac{1}{4}$	12.80	$17\frac{1}{2}$	3	25.00	22

ABOVE DRILLS HAVE TAPER SHANK AS FOLLOWS

Diameters (inclusive)	$\frac{1}{8}$ to $\frac{3}{8}$	$\frac{3}{8}$ to $\frac{1}{2}$	$\frac{1}{2}$ to $1\frac{1}{4}$	$1\frac{1}{4}$ to 2	$2\frac{1}{4}$ to 3
Number Taper Shank	1	2	3	4	5

Straight Shank Twist Drills

TAPER SHANK LENGTHS

List same as Taper Shank Drills.



Straight Shank Twist Drills

JOBBERS' OR SHORT LENGTHS

The shanks of these drills are the same diameter as the drill.

Diam.	Each	Per Dozen	Length	Diam.	Each	Per Dozen	Length
$\frac{1}{8}$	.09	.90	1 $\frac{1}{2}$	$\frac{3}{8}$	.32	3.65	4 $\frac{1}{2}$
$\frac{3}{16}$	.09	1.00	1 $\frac{3}{4}$	$\frac{1}{2}$	.35	3.90	4 $\frac{3}{4}$
$\frac{1}{4}$	.09	1.00	2 $\frac{1}{4}$	$\frac{5}{8}$	.37	4.20	4 $\frac{3}{4}$
$\frac{5}{16}$	.10	1.10	2 $\frac{3}{4}$	$\frac{3}{4}$	.40	4.50	4 $\frac{3}{4}$
$\frac{3}{8}$	.11	1.20	2 $\frac{3}{4}$	$\frac{7}{8}$	.42	4.80	4 $\frac{3}{4}$
$\frac{7}{16}$	.12	1.30	2 $\frac{3}{4}$	$\frac{1}{2}$	.45	5.10	4 $\frac{3}{4}$
$\frac{1}{2}$	.13	1.45	3	$\frac{1}{2}$	.48	5.40	5
$\frac{5}{8}$	.15	1.60	3 $\frac{1}{4}$	$\frac{1}{2}$	.50	5.70	5 $\frac{1}{2}$
$\frac{3}{4}$	.16	1.80	3 $\frac{1}{4}$	$\frac{1}{2}$	.53	6.00	5 $\frac{1}{2}$
$\frac{7}{8}$	.18	2.00	3 $\frac{3}{4}$	$\frac{1}{2}$	.55	6.40	5 $\frac{1}{2}$
$\frac{1}{2}$	.20	2.20	3 $\frac{3}{4}$	$\frac{1}{2}$	.59	6.80	5 $\frac{1}{2}$
$\frac{1}{2}$	.21	2.40	3 $\frac{3}{4}$	$\frac{1}{2}$	.63	7.20	5 $\frac{1}{2}$
$\frac{1}{2}$	.23	2.65	3 $\frac{3}{4}$	$\frac{1}{2}$	.65	7.50	5 $\frac{1}{2}$
$\frac{1}{2}$	.26	2.90	3 $\frac{3}{4}$	$\frac{1}{2}$	.67	7.75	5 $\frac{1}{2}$
$\frac{1}{2}$	.28	3.15	4	$\frac{1}{2}$	.70	8.00	6
$\frac{1}{2}$	.30	3.40	4 $\frac{1}{2}$				



Blacksmiths Twist Drills

DRILLS 6 INCHES LONG WITH SHANKS $2\frac{1}{4}$ INCHES LONG, $\frac{1}{2}$ INCH DIAMETER

Diam.	Price Each.	Diam.	Price Each.	Diam.	Price Each.	Diam.	Price Each.
$\frac{1}{8}$	.45	$\frac{1}{8}$	.85	$\frac{3}{8}$	1.40	$\frac{1}{8}$	2.30
$\frac{3}{16}$	.48	$\frac{3}{16}$	.88	$\frac{1}{2}$	1.45	$\frac{3}{16}$	2.35
$\frac{1}{4}$	.50	$\frac{1}{4}$	.90	$\frac{5}{8}$	1.50	$\frac{1}{4}$	2.40
$\frac{5}{16}$	.55	$\frac{5}{16}$	.95	$\frac{3}{4}$	1.60	$\frac{5}{16}$	2.50
$\frac{3}{8}$	.60	$\frac{3}{8}$	1.05	$\frac{7}{8}$	1.70	$\frac{3}{8}$	2.60
$\frac{7}{16}$	.65	$\frac{7}{16}$	1.10	1	1.80	$\frac{7}{16}$	2.70
$\frac{1}{2}$	.70	$\frac{1}{2}$	1.15	$1\frac{1}{8}$	1.90	$1\frac{1}{8}$	2.80
$\frac{5}{8}$	.73	$\frac{5}{8}$	1.20	$1\frac{1}{4}$	2.00	$1\frac{1}{4}$	2.90
$\frac{3}{4}$	.75	$\frac{3}{4}$	1.25	$1\frac{3}{8}$	2.10	$1\frac{3}{8}$	3.00
$\frac{7}{8}$	.78	$\frac{7}{8}$	1.30	$1\frac{1}{2}$	2.20	$1\frac{1}{2}$	3.10
$1\frac{1}{8}$	.80	$1\frac{1}{8}$	1.35	$1\frac{3}{4}$	2.25	$1\frac{3}{4}$	3.20
$1\frac{1}{4}$	.83						



Blacksmiths Twist Drills

DRILLS 6 INCHES LONG WITH SHANKS $2\frac{1}{4}$ INCHES LONG, $\frac{1}{2}$ INCH DIAMETER

Diam.	Price Each.	Diam.	Price Each.	Diam.	Price Each.	Diam.	Price Each.
$\frac{1}{8}$	.55	$\frac{1}{8}$	.95	$\frac{3}{8}$	1.40	$\frac{1}{8}$	2.30
$\frac{3}{16}$	.58	$\frac{3}{16}$	.98	$\frac{1}{2}$	1.45	$\frac{3}{16}$	2.35
$\frac{1}{4}$	.60	$\frac{1}{4}$	1.00	$\frac{5}{8}$	1.55	$\frac{1}{4}$	2.40
$\frac{5}{16}$	.65	$\frac{5}{16}$	1.03	$\frac{3}{4}$	1.60	$\frac{5}{16}$	2.50
$\frac{3}{8}$	.70	$\frac{3}{8}$	1.05	$\frac{7}{8}$	1.70	$\frac{3}{8}$	2.60
$\frac{7}{16}$	.73	$\frac{7}{16}$	1.10	1	1.80	$\frac{7}{16}$	2.70
$\frac{1}{2}$	.75	$\frac{1}{2}$	1.15	$1\frac{1}{8}$	1.90	$1\frac{1}{8}$	2.80
$\frac{5}{8}$	.80	$\frac{5}{8}$	1.20	$1\frac{1}{4}$	2.00	$1\frac{1}{4}$	2.90
$\frac{3}{4}$	.85	$\frac{3}{4}$	1.25	$1\frac{3}{8}$	2.10	$1\frac{3}{8}$	3.00
$\frac{7}{8}$	.88	$\frac{7}{8}$	1.30	$1\frac{1}{2}$	2.20	$1\frac{1}{2}$	3.10
$1\frac{1}{8}$	.90	$1\frac{1}{8}$	1.35	$1\frac{3}{4}$	2.25	$1\frac{3}{4}$	3.20
$1\frac{1}{4}$	.93						



Stub's Steel Wire Gauge Drills

No. by Gauge	Decimal Equivalent	Price per Dozen	Price Each	Length	No. by Gauge	Decimal Equivalent	Price per Dozen	Price Each	Length
1	.2280	2.35	.22	4	41	.0960	1.10	.10	2 5/16
2	.2210	2.35	.22	3 1/8	42	.0935	1.10	.10	2 1/8
3	.2130	2.35	.22	3 1/16	43	.0890	1.10	.10	2 1/8
4	.2090	2.35	.22	3 1/8	44	.0860	1.10	.10	2 1/8
5	.2055	2.35	.22	3 1/8	45	.0820	1.10	.10	2 1/8
6	.2040	2.25	.21	3 1/8	46	.0810	.95	.09	2 1/8
7	.2010	2.25	.21	3 1/8	47	.0785	.95	.09	2 1/8
8	.1990	2.25	.21	3 1/8	48	.0760	.95	.09	2 1/8
9	.1960	2.25	.21	3 1/8	49	.0730	.95	.09	2 1/8
10	.1935	2.25	.21	3 1/8	50	.0700	.95	.09	2 1/8
11	.1910	2.10	.20	3 1/8	51	.0670	.95	.09	1 13/16
12	.1890	2.10	.20	3 1/8	52	.0635	.95	.09	1 13/16
13	.1850	2.10	.20	3 1/8	53	.0595	.95	.09	1 13/16
14	.1820	2.10	.20	3 1/8	54	.0550	.95	.09	1 13/16
15	.1800	2.10	.20	3 1/8	55	.0520	.95	.09	1 13/16
16	.1770	1.95	.19	3 1/8	56	.0465	.95	.09	1 13/16
17	.1730	1.95	.19	3 1/8	57	.0430	.95	.09	1 13/16
18	.1695	1.95	.19	3 1/8	58	.0420	.95	.09	1 13/16
19	.1660	1.95	.19	3 1/8	59	.0410	.95	.09	1 13/16
20	.1610	1.95	.19	3 1/8	60	.0400	.95	.09	1 13/16
21	.1590	1.75	.17	3 1/8	61	.0390	.90	.08	1 13/16
22	.1570	1.75	.17	3 1/8	62	.0380	.90	.08	1 13/16
23	.1540	1.75	.17	3 1/8	63	.0370	.90	.08	1 13/16
24	.1520	1.75	.17	3 1/8	64	.0360	.90	.08	1 13/16
25	.1495	1.75	.17	3 1/8	65	.0350	.90	.08	1 13/16
26	.1470	1.55	.15	2 13/16	66	.0330	.90	.08	1 13/16
27	.1440	1.55	.15	2 13/16	67	.0320	.90	.08	1 13/16
28	.1405	1.55	.15	2 13/16	68	.0310	.90	.08	1 13/16
29	.1360	1.55	.15	2 13/16	69	.02925	.90	.08	1 13/16
30	.1285	1.55	.15	2 13/16	70	.0280	.90	.08	1 13/16
31	.1200	1.40	.14	2 13/16	71	.0260	1.00	.09	1 13/16
32	.1160	1.40	.14	2 13/16	72	.0250	1.00	.09	1 13/16
33	.1130	1.40	.14	2 13/16	73	.0240	1.00	.09	1 13/16
34	.1110	1.40	.14	2 13/16	74	.0225	1.00	.09	1 13/16
35	.1100	1.40	.14	2 13/16	75	.0210	1.00	.09	1 13/16
36	.1065	1.25	.12	2 13/16	76	.0200	1.00	.09	1 13/16
37	.1040	1.25	.12	2 13/16	77	.0180	1.00	.09	1 13/16
38	.1015	1.25	.12	2 13/16	78	.0160	1.00	.09	1 13/16
39	.0995	1.25	.12	2 13/16	79	.0145	1.00	.09	1 13/16
40	.0980	1.25	.12	2 13/16	80	.0135	1.00	.09	1 13/16



Taper Square Shank Ratchet Drills

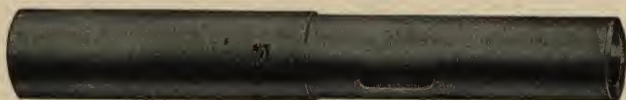
SHANKS ARE 3/8x3/8x1 1/2 INCHES LONG

Diam	Price Each	Length	Diam	Price Each	Length	Diam	Price Each	Length	Diam	Price Each	Length
1/8	.90	4 1/2	1/8	1.35	6 1/2	1 1/8	2.55	8 1/2	1 1/8	4.35	9
3/16	.95	4 1/2	1/8	1.40	6 1/2	1 1/8	2.70	8 1/2	1 1/8	4.50	9
1/4	.95	4 1/2	1/8	1.40	6 1/2	1 1/8	2.85	8 1/2	1 1/8	4.65	9
5/16	1.00	5	1/8	1.45	6 1/2	1 1/8	3.00	8 1/2	1 1/8	4.80	9
3/8	1.00	5	1/8	1.45	6 1/2	1 1/8	3.10	9	1 1/8	5.10	9
7/16	1.05	5	1/8	1.50	6 1/2	1 1/8	3.25	9	1 1/8	5.40	9
1/2	1.10	5	1/8	1.55	6 1/2	1 1/8	3.35	9	1 1/8	5.75	9
9/16	1.15	5	1/8	1.65	6 1/2	1 1/8	3.50	9	1 1/8	6.10	9
5/8	1.20	6	1/8	1.75	7	1 1/8	3.65	9	1 1/8	6.50	9
3/4	1.25	6 1/2	1/8	1.90	7	1 1/8	3.75	9	1 1/8	6.90	9
7/8	1.25	6 1/2	1/8	2.05	7 1/2	1 1/8	3.90	9	1 1/8	7.30	9
1 1/8	1.30	6 1/2	1/8	2.20	7 1/2	1 1/8	4.05	9	2	7.75	9
1 1/4	1.30	6 1/2	1/8	2.30	8	1 1/8	4.20	9			
1 1/2	1.35	6 1/2	1/8	2.40	8						



Bit Stock Drills For Metal or Wood

Diameter, Inches.	Price Per Dozen.	Price Each	Length Over All, Inches	Diameter, Inches.	Price Per Dozen.	Price Each	Length Over All, Inches
$\frac{1}{8}$	1.50	.14	$3\frac{1}{8}$	$\frac{1}{2}$	10.30	.87	7
$\frac{3}{8}$	1.65	.16	4	$\frac{5}{8}$	11.00	.92	$7\frac{1}{2}$
$\frac{1}{2}$	2.10	.20	4	$\frac{3}{4}$	14.35	1.20	$7\frac{1}{2}$
$\frac{5}{8}$	2.60	.24	$4\frac{1}{2}$	$\frac{7}{8}$	16.15	1.35	$7\frac{1}{2}$
$\frac{3}{4}$	3.10	.29	$4\frac{3}{4}$	1	17.95	1.50	$7\frac{1}{2}$
$\frac{7}{8}$	3.60	.33	$4\frac{3}{4}$	$1\frac{1}{8}$	19.75	1.65	$7\frac{1}{2}$
1	4.10	.38	5	$1\frac{1}{4}$	21.55	1.80	$7\frac{1}{2}$
$1\frac{1}{8}$	4.70	.43	$5\frac{1}{2}$	$1\frac{3}{8}$	23.35	1.95	$7\frac{1}{2}$
$1\frac{1}{4}$	5.40	.48	$5\frac{3}{4}$	$1\frac{1}{2}$	25.75	2.15	$7\frac{1}{2}$
$1\frac{3}{8}$	6.30	.54	$5\frac{3}{4}$	1	28.15	2.35	$7\frac{1}{2}$
$1\frac{1}{2}$	7.20	.62	6	$1\frac{1}{8}$	35.95	3.00	$7\frac{1}{2}$
$1\frac{3}{4}$	8.00	.68	$6\frac{1}{2}$	$1\frac{3}{8}$	40.15	3.35	$7\frac{1}{2}$
$1\frac{7}{8}$	8.80	.75	$6\frac{3}{4}$	$1\frac{1}{2}$	43.15	3.60	$7\frac{1}{2}$
2	9.60	.82	6 $\frac{3}{4}$	1 $\frac{1}{4}$	44.95	3.75	$7\frac{1}{2}$



Steel Sockets For Taper Shank Drills

Unfinished Shanks

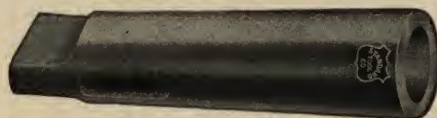
Number of Socket.....	1	2	3	4	5	6
Holds Drills (inclusive)...	$\frac{1}{8}$ to $\frac{1}{2}$	$\frac{3}{8}$ to $\frac{1}{2}$	$\frac{3}{8}$ to $1\frac{1}{4}$	$1\frac{1}{4}$ to 2	$2\frac{1}{8}$ to 3	$3\frac{3}{4}$ to 6
Length Over All.....	$6\frac{1}{2}$	$7\frac{1}{2}$	$9\frac{1}{2}$	$11\frac{1}{2}$	15	18
Diameter of Shank.....	$\frac{1}{8}$	$1\frac{1}{8}$	$1\frac{1}{8}$	$1\frac{1}{8}$	$2\frac{1}{8}$	3
Price	1.20	1.80	2.50	4.00	7.50	14.00



Steel Sockets For Taper Shank Drills

Finished Shanks

Number of Hole.....	1	1	1	1	2	2	2	3	3
Number of Shank.....	2	3	4	5	8	4	5	2	3
Price	2.00	2.50	3.20	4.80	2.50	3.20	4.80	3.20	3.20
Number of Hole.....	3	3	4	4	4	4	5	5	5
Number of Shank.....	4	5	3	4	5	6	4	5	6
Price	3.20	4.80	4.80	4.80	4.80	12.00	12.00	12.00	12.00



Steel Sleeves For Taper Shank Drills

Number of Hole.....	1	1	1	1	2	2	2	3	3	4	4	5
Outside Fitting Socket...No.	2	3	4	5	3	4	5	4	5	5	6	6
Price	1.80	2.40	3.00	4.40	2.40	3.00	4.40	3.00	4.40	4.40	10.00	10.00



Taper



Plug



Bottoming

Machinists' Hand Taps

Diam	Each	No. of Threads		V Threads Also Furnished	Diam	Each	No. of Threads		V Threads Also Furnished
		U. S. Standard	V Standard				U. S. Standard	V Standard	
$\frac{1}{16}$	.35	64	72	60, 64	$\frac{1}{16}$	1.05	11	11	10-12
$\frac{3}{32}$	.35	50	56	56, 60, 64	$\frac{3}{32}$	1.05	11	11	10-12
$\frac{1}{8}$	.35	40	40	48, 50, 54, 60	$\frac{1}{8}$	1.20	10	10	12-20-27
$\frac{9}{32}$	.35	32	32	48	$\frac{9}{32}$	1.20	10	10	12-20-27
$\frac{1}{4}$	.35	24	24	32, 36, 48, 50	$\frac{1}{4}$	1.40	10	10	12
$\frac{5}{16}$	.35	20	20	32, 36	$\frac{5}{16}$	1.40	10	10	12
$\frac{3}{8}$	.35	16	16	30, 36, 40	$\frac{3}{8}$	1.60	9	9	10-12-27
$\frac{7}{16}$	.35	12	12	36	$\frac{7}{16}$	1.60	9	9	10-12-27
$\frac{1}{2}$	.35	10	10	30, 32, 36	$\frac{1}{2}$	1.80	9	9	12
$\frac{5}{8}$	.35	8	8	32	$\frac{5}{8}$	1.80	9	9	12
$\frac{3}{4}$	.35	7	7	32	$\frac{3}{4}$	2.00	8	8	12-27
$\frac{7}{8}$	.35	6	6	32	$\frac{7}{8}$	2.00	8	8	12-27
$\frac{1}{2}$	.45	20	20	24, 27, 32	$\frac{1}{2}$	2.15	8	8	12
$\frac{5}{8}$	.45	16	16	24, 27, 32	$\frac{5}{8}$	2.25	7	7	8-12
$\frac{3}{4}$	.45	12	12	24, 27, 32	$\frac{3}{4}$	2.45	7	7	
$\frac{7}{8}$	.50	10	10	20, 24, 27, 32	$\frac{7}{8}$	2.60	7	7	12
$\frac{1}{2}$	.50	13	13	20, 24, 27, 32	$\frac{1}{2}$	2.80	7	7	
$\frac{5}{8}$	.50	13	13	20, 24, 27, 32	$\frac{5}{8}$	3.00	6	6	
$\frac{3}{4}$	.55	16	16	14, 18, 20, 24, 27	$\frac{3}{4}$	3.25	6	6	
$\frac{7}{8}$	.55	16	16	14, 18, 20, 24, 27	$\frac{7}{8}$	3.50	6	6	
$\frac{1}{2}$	.55	16	16	14, 18, 20, 24, 27	$\frac{1}{2}$	4.20	5 $\frac{1}{2}$	5	
$\frac{5}{8}$	.60	14	14	12, 16, 20, 24, 27	$\frac{5}{8}$	5.00	5	5	
$\frac{3}{4}$	.60	14	14	12, 16, 20, 24, 27	$\frac{3}{4}$	5.80	5	4 $\frac{1}{2}$	
$\frac{7}{8}$	.60	14	14	12, 16, 20, 24, 27	$\frac{7}{8}$	6.70	4 $\frac{1}{2}$	4 $\frac{1}{2}$	
$\frac{1}{2}$	.70	13	12	13, 14, 16, 20, 24, 27	$\frac{1}{2}$	8.00	4 $\frac{1}{2}$	4 $\frac{1}{2}$	
$\frac{5}{8}$	.70	13	12	13, 14, 16, 20, 24, 27	$\frac{5}{8}$	9.20	4 $\frac{1}{2}$	4 $\frac{1}{2}$	
$\frac{3}{4}$	.70	13	12	13, 14, 16, 20, 24, 27	$\frac{3}{4}$	10.50	4	4 $\frac{1}{2}$	
$\frac{7}{8}$	.80	12	12	14, 27	$\frac{7}{8}$	11.50	4	4	
$\frac{1}{2}$	.80	12	12	14, 27	$\frac{1}{2}$	13.00	4	4	
$\frac{5}{8}$	.80	12	12	14, 27	$\frac{5}{8}$	14.00	4	4	
$\frac{3}{4}$	.90	11	11	10, 12, 20, 24, 27	$\frac{3}{4}$	15.50	3 $\frac{1}{2}$	4	
$\frac{7}{8}$	.90	11	11	10, 12, 20, 24, 27	$\frac{7}{8}$	17.00	3 $\frac{1}{2}$	3 $\frac{1}{2}$	
$\frac{1}{2}$	.90	11	11	10, 12, 20, 24, 27					

Always specify style and numbers of threads wanted.



Stove Bolt Taps

Diam.	Each	Per Doz.	No. of Threads	Diam.	Each	Per Doz.	No. of Threads
$\frac{3}{8}$	.35	4.00	28	$\frac{1}{2}$	.38	4.40	18
$\frac{1}{2}$	.35	4.00	24	$\frac{3}{4}$	.38	4.40	18
$\frac{3}{4}$	.35	4.00	22	$\frac{1}{2}$	.45	5.30	16

Machine or Nut Taps

Diameter	Price Each	Total Length Inches	NUMBER OF THREADS TO INCH		
			Standard V Threads	V Threads also furnished	U. S. Standard Threads
$\frac{1}{16}$	.60	$4\frac{1}{2}$	24	32	32
$\frac{1}{8}$	.60	5	20	24	20
$\frac{1}{4}$	.70	$5\frac{1}{2}$	18	16, 20, 24	18
$\frac{3}{8}$	.80	6	16	14, 18	16
$\frac{1}{2}$	.90	$6\frac{1}{2}$	14	12, 16	14
$\frac{5}{8}$	1.00	7	12	13	13
$\frac{3}{4}$	1.15	$7\frac{1}{2}$	12	14	12
$\frac{7}{8}$	1.30	8	11	10, 12	11
1	1.45	$8\frac{1}{2}$	11	12	11
$1\frac{1}{8}$	1.60	9	10	12	10
$1\frac{1}{4}$	1.80	$9\frac{1}{2}$	10	12	10
$1\frac{3}{8}$	2.10	10	9	10, 12	9
$1\frac{1}{2}$	2.40	$10\frac{1}{2}$	9	12	9
1	3.15	11	8	12	8
$1\frac{1}{8}$	3.40	11	8	-----	8
$1\frac{1}{4}$	3.60	$11\frac{1}{2}$	7	-----	7
$1\frac{3}{8}$	3.90	$11\frac{1}{2}$	7	8	7
$1\frac{1}{2}$	4.25	12	7	-----	7
$1\frac{3}{4}$	4.50	12	7	-----	7
$1\frac{7}{8}$	4.80	$12\frac{1}{2}$	6	-----	6
1	5.00	$12\frac{1}{2}$	6	-----	6
$1\frac{1}{8}$	5.65	13	6	-----	6
$1\frac{1}{4}$	6.50	$13\frac{1}{2}$	5	-----	5
$1\frac{3}{8}$	7.20	14	5	-----	5
$1\frac{1}{2}$	8.25	$14\frac{1}{2}$	$4\frac{1}{2}$	-----	5
2	9.25	15	$4\frac{1}{2}$	-----	4

Always specify style and number of threads wanted.

Machine Screw Taps

Number of Screw Gauge	Price Each	Price Per Dozen	Standard No. of Threads	Threads also Furnished
1	.35	4.00	-----	56, 60, 64, 72
$1\frac{1}{2}$	.35	4.00	-----	56
2	.35	4.00	56	48, 64
3	.35	4.00	48	40, 56
4	.35	4.00	36	32, 40, 42, 48
5	.35	4.00	36	32, 40
6	.35	4.00	32	30, 36, 38, 40, 48
7	.35	4.00	32	30, 40
8	.35	4.00	30	30, 36, 40
9	.35	4.00	24	28, 32
10	.35	4.00	24	28, 30, 32, 36
11	.35	4.00	24	25, 30
12	.35	4.00	24	20, 32
13	.38	4.40	22	20, 24, 32
14	.38	4.40	20	18, 24
15	.38	4.40	20	18, 24
16	.38	4.40	18	16, 20
18	.38	4.40	18	16, 20
20	.45	5.30	16	18
22	.45	5.30	16	18
24	.45	5.30	16	14, 18
26	.53	6.30	16	14
28	.53	6.30	14	16
30	.53	6.30	14	16

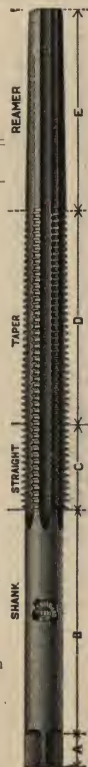
Always specify number of threads wanted.

Stay Bolt Taps

Diameter	Price per inch of Length
$\frac{3}{16}$, $\frac{1}{8}$, $\frac{1}{4}$	.40
$\frac{1}{8}$, $\frac{1}{4}$	.45
$\frac{1}{4}$, $\frac{3}{8}$	.50
$\frac{1}{4}$, $\frac{1}{2}$	.55
$\frac{1}{2}$, $\frac{3}{4}$	.60
$\frac{1}{2}$, $\frac{1}{2}$	.70

All orders for these Taps should give exact diameter and number of threads per inch, also length of parts A, B, C, D, and E

Unless otherwise ordered, we shall send these taps with twelve threads to the inch, exact size. Taps shorter than 16" will be charged as 16".





Pipe Taps. Pipe Reamers.

Pipe size -----	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Threads per inch-----	27	18	18	14	14	11 $\frac{1}{2}$	11 $\frac{1}{2}$	11 $\frac{1}{2}$	11 $\frac{1}{2}$	8	8	8	8
Tap or Reamer-----each	1.12	1.25	1.50	1.87	2.50	3.12	3.75	4.62	6.25	10.50	15.00	42.00	50.00



Short Patch Bolt Taps

Diameter -----	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$
Number of threads to inch-----	12	12	12	12	12	12	12	12	12
Price -----each	.70	.80	.90	1.05	1.20	1.40	1.60	1.80	2.00

These Taps are slightly tapered to make a steam-tight fit.



Bit Stock Taper Reamers

Size -----inches	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{2}$
Price -----each	.45	.50	.55	.60	.70	.80	.90	1.05	1.20
Size -----inches	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$
Price -----each	1.60	1.80	2.00	2.20	2.40	2.60	2.80	3.00	3.50

Taper 1 inch per foot.



Straight Shank Taper Reamers

With Shanks $\frac{1}{2}$ -inch diameter and 2 inches long

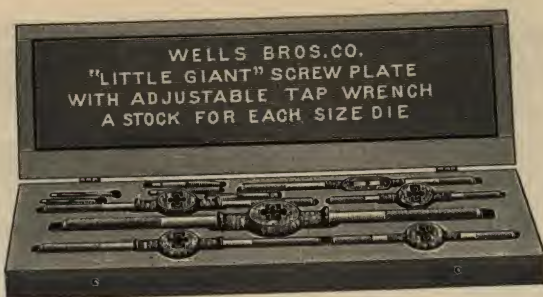
Size -----inches	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$
Price -----each	.45	.50	.55	.60	.70	.80	.90	1.05	1.20
Size -----inches	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$
Price -----each	1.60	1.80	2.00	2.20	2.40	2.60	2.80	3.00	3.50

Taper 1 inch per foot.



Little Giant Screw Plates

No.	Length of Stock	Diameter of Collet	Sizes Will Cut	Price
A1	7 1/2"	1 1/4"	1 1/4, 1 1/8, 1 1/2, 1 3/4, 1 7/8, 2, 2 1/8, 2 1/4, 2 1/2, 2 3/4, 2 7/8, 3, 3 1/8, 3 1/4, 3 1/2, 3 3/4, 3 7/8, 4, 4 1/8, 4 1/4, 4 1/2, 4 3/4, 4 7/8, 5, 5 1/8, 5 1/4, 5 1/2, 5 3/4, 5 7/8, 6, 6 1/8, 6 1/4, 6 1/2, 6 3/4, 6 7/8, 7, 7 1/8, 7 1/4, 7 1/2, 7 3/4, 7 7/8, 8, 8 1/8, 8 1/4, 8 1/2, 8 3/4, 8 7/8, 9, 9 1/8, 9 1/4, 9 1/2, 9 3/4, 9 7/8, 10, 10 1/8, 10 1/4, 10 1/2, 10 3/4, 10 7/8, 11, 11 1/8, 11 1/4, 11 1/2, 11 3/4, 11 7/8, 12, 12 1/8, 12 1/4, 12 1/2, 12 3/4, 12 7/8, 13, 13 1/8, 13 1/4, 13 1/2, 13 3/4, 13 7/8, 14, 14 1/8, 14 1/4, 14 1/2, 14 3/4, 14 7/8, 15, 15 1/8, 15 1/4, 15 1/2, 15 3/4, 15 7/8, 16, 16 1/8, 16 1/4, 16 1/2, 16 3/4, 16 7/8, 17, 17 1/8, 17 1/4, 17 1/2, 17 3/4, 17 7/8, 18, 18 1/8, 18 1/4, 18 1/2, 18 3/4, 18 7/8, 19, 19 1/8, 19 1/4, 19 1/2, 19 3/4, 19 7/8, 20, 20 1/8, 20 1/4, 20 1/2, 20 3/4, 20 7/8, 21, 21 1/8, 21 1/4, 21 1/2, 21 3/4, 21 7/8, 22, 22 1/8, 22 1/4, 22 1/2, 22 3/4, 22 7/8, 23, 23 1/8, 23 1/4, 23 1/2, 23 3/4, 23 7/8, 24, 24 1/8, 24 1/4, 24 1/2, 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253 3/4, 253 7/8, 254, 254 1/8, 254 1/4, 254 1/2, 254 3/4, 254 7/8, 255, 255 1/8, 255 1/4	



Little Giant Full Stocked Screw Plates

A STOCK FOR EACH DIE. COMPLETE WITH TAPS AND TAP WRENCHES IN CASE

Instead of having but a single stock to a set of several dies, each die is furnished complete with its own stock of suitable size and weight. The time and trouble in fitting and changing dies for each occasion is saved. Several sizes out of the same set may be in use at the same time.

No. 61	Cuts	$\frac{1}{20}$, $\frac{1}{16}$, $\frac{3}{16}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{11}{16}$	12.00
No. 62	Cuts	$\frac{1}{20}$, $\frac{1}{16}$, $\frac{3}{16}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{11}{16}$	15.50
No. 63	Cuts	$\frac{1}{16}$, $\frac{3}{16}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{11}{16}$	17.00
No. 64	Cuts	$\frac{1}{16}$, $\frac{3}{16}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{11}{16}$	19.50
No. 65	Cuts	$\frac{1}{16}$, $\frac{3}{16}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{11}{16}$	18.00
No. 65 $\frac{1}{2}$	Cuts	$\frac{1}{16}$, $\frac{3}{16}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{11}{16}$	20.50
No. 66	Cuts	$\frac{1}{16}$, $\frac{3}{16}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{11}{16}$	24.00
No. 67	Cuts	$\frac{1}{16}$, $\frac{3}{16}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{11}{16}$	29.50
No. 67 $\frac{1}{2}$	Cuts	$\frac{1}{16}$, $\frac{3}{16}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{11}{16}$	32.00
No. 620	Cuts	$\frac{1}{16}$, $\frac{3}{16}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{11}{16}$	40.00
No. 625	Cuts	$\frac{1}{16}$, $\frac{3}{16}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{11}{16}$	50.00
No. 630	Cuts	$\frac{1}{16}$, $\frac{3}{16}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{11}{16}$	43.50
No. 640	Cuts	$\frac{1}{16}$, $\frac{3}{16}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{11}{16}$	47.00
No. 650	Cuts	$\frac{1}{16}$, $\frac{3}{16}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{11}{16}$	67.00

"V" threads oversize furnished unless otherwise ordered. "V" threads exact sizes and U. S. Standard threads furnished at same list prices.

PRICE LIST OF PARTS

Size	inches	$\frac{1}{16}$	$\frac{1}{8}$	$\frac{3}{16}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	$1\frac{1}{8}$
Die	each	1.00	1.00	1.00	1.25	1.25	1.50	1.50	1.75
Guide	each	.20	.20	.20	.20	.20	.20	.20	.20
Stock	each	.50	.50	.50	.75	.75	.75	.75	.75
Size	inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	1	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Die	each	2.00	2.00	2.75	2.75	2.75	4.00	4.00	5.00
Guide	each	.20	.20	.20	.20	.20	.50	.50	.50
Stock	each	.75	1.00	1.00	1.00	1.00	1.75	1.75	2.25

Extra Parts For Little Giant Screw Plates

EXTRA DIES

Use same list as just above.

Dies for $\frac{1}{16}$ " Collets	.....	.60
Dies for $\frac{1}{8}$ " Collets, except No. 24 and $\frac{3}{8}$"	.....	1.00
Dies for $\frac{1}{8}$ " Collets, No. 24 and $\frac{3}{8}$"	.....	1.25

EXTRA STOCKS

Length	inches	$\frac{7}{16}$	$13\frac{1}{2}$	$14\frac{1}{2}$	23	26	29	40	52
For Collets	diameter	$\frac{1}{16}$	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	4	$4\frac{1}{2}$
Price		.70	1.25	1.50	2.00	2.00	2.00	6.00	8.00

EXTRA COLLETS

Size of Die.	Diam. of Collet.	Guide.	Cap.	Complete.
No. A1. $\frac{1}{16}$ to $\frac{1}{8}$	$\frac{1}{16}$	.15	.25	.40
No. A10, A12, A14	$\frac{1}{8}$	.15	.35	.50
No. 1. $\frac{1}{4}$ to $\frac{3}{8}$	$\frac{1}{4}$	.20	.30	.50
No. 6. $\frac{1}{2}$ to 1	$\frac{1}{2}$	.20	.30	.50
No. 20. $\frac{3}{4}$ to $1\frac{1}{2}$	$\frac{3}{4}$	.50	1.00	1.50
No. 30. $1\frac{1}{2}$ to $2\frac{1}{2}$	$1\frac{1}{2}$	.50	1.00	1.50



Plain



Ratchet

Oster Bull-Dog Die Stocks

The New Lever Controlled Setting Device provides instant and easy release of the dies without backing off.
One Movement of the Lever opens or closes the dies. Duplicate threads are made without resetting.

Number	Sizes of Pipe Each Tool Will Thread	Price	Extra Dies, Per Set (4 Pcs.)	Number of Sets to Each Tool
101	$\frac{1}{8}$, $\frac{1}{4}$ & $\frac{3}{8}$, $\frac{1}{2}$ & $\frac{5}{8}$	13.00	1.50	3
102	$\frac{1}{4}$ & $\frac{3}{8}$, $\frac{1}{2}$ & $\frac{5}{8}$, 1 & $1\frac{1}{2}$	17.00	1.75	3
103	1 & $1\frac{1}{2}$, $1\frac{1}{2}$ & 2	22.00	2.00	2
104	$\frac{1}{8}$ & $\frac{3}{8}$, 1 & $1\frac{1}{2}$, $1\frac{1}{2}$ & 2	25.00	2.00	3
104 $\frac{1}{2}$	$\frac{1}{4}$ & $\frac{3}{8}$, $\frac{1}{2}$ & $\frac{5}{8}$, 1 & $1\frac{1}{2}$, $1\frac{1}{2}$ & 2	28.00	2.00	4
105	$1\frac{1}{2}$ & 2, $2\frac{1}{2}$ & 3	40.00	3.00	2

Oster Bull-Dog Ratchet Die Stocks

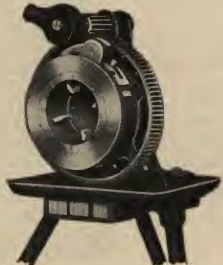
Number	Sizes of Pipe Each Tool Will Thread	Price	Extra Dies, Per Set (4 Pcs.)	Number of Sets to Each Tool
102R	$\frac{1}{8}$ & $\frac{3}{8}$, $\frac{1}{2}$ & $\frac{5}{8}$, 1 & $1\frac{1}{2}$	20.00	1.75	3
103R	1 & $1\frac{1}{2}$, $1\frac{1}{2}$ & 2	25.00	2.00	2
104R	$\frac{1}{8}$ & $\frac{3}{8}$, 1 & $1\frac{1}{2}$, $1\frac{1}{2}$ & 2	28.50	2.00	3
105R	$1\frac{1}{2}$ & 2, $2\frac{1}{2}$ & 3	50.00	3.00	2



No. 201



Nos. 204 & 206



No. 16. No. 17

Oster Hand Pipe Machines

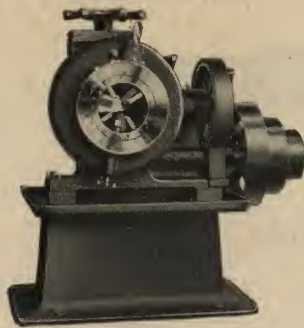
Number	Sizes Right Hand	Sets of Dies	Without Tripod and Pan	Extra Dies per set	Tripod and Pan	Weight
201	$\frac{1}{2}$ in. to 2 in.	4	60.00	3.00	10.00	275
204	1 in. to 4 in.	4	140.00	4.00	10.00	575
206	1 in. to 6 in.	6	225.00	5.00	25.00	975

Oster Geared Die Stocks

WITH ADJUSTABLE CENTERING CHUCK

Number	Cutting Threads	16 $2\frac{1}{2}$ to 4 inch		17 $2\frac{1}{2}$ to 6 inch	
		Price	Weight	Price	Weight
Die Stock Only		105.00	165	180.00	320
With Bench Bracket		110.00	190	185.00	380
With Bench Bracket and Pan		115.00	225	190.00	440
Complete with Tripod		125.00	275	200.00	500
Extra Dies, per set of 4 pieces		4.00	23	5.00	53

Send for special circular of Pipe Machines.



No. 207-A



No. 300-A, No. 304-A

Oster Power Pipe Machines

A Strong, Powerful Machine built on a good, wide base, and is intended for the hardest kind of work. It will stand the strain and can be operated by an inexperienced man.

The Oster Patent Lever Controlled Die Head provides instant and easy release of dies. The lever can be operated while the machine is in motion; no burr is left in the thread.

The Adjustable Guides hold the pipe firmly while cutting off. No change of equipment necessary.

The Automatic Oiling Device keeps the dies flooded with a liberal quantity of oil at all times. This saves the life of the dies, and reduces the operating expenses to a minimum.

The Vise is simple and practical. It centers the pipe perfectly, insuring straight threads.

Description.	Prices.	
	207-A	No. 207-A Motor
Machine 1 in. to 6 in. (6 sets dies).....	425.00	600.00
Machine 1½ in. to 6 in. (5 sets dies).....	420.00	595.00
Machine 2½ in. to 6 in. (4 sets dies).....	415.00	590.00
Extra Dies, Right or Left, per set (4 pcs).....	5.00	5.00
Bolt Dies, ½ in. to 2 in., per set (4 pcs).....	7.50	7.50
Casing Dies, up to 6½ in., per set (4 pcs).....	7.50	7.50
Extra Cutting-off Blades, each.....	.75	.75
Weight, boxed complete.....	1950 lbs.	2300 lbs.
Floor Space.....	36"x27"	52"x35"

Prices on Motor Machines for Direct or Alternating Current.

Oster Pipe and Nipple Machines

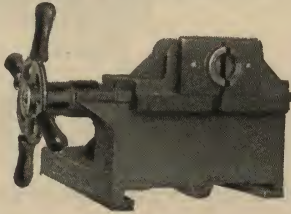
These Machines are designed for shop use, for rapid threading of pipe and nipples.

The Oster Patent Lever Controlled Die Head provides instant and easy release of dies. One movement of the lever opens and closes the dies.

The Vise will hold the work in the center of the dies. The jaws open and the pipe can be dropped into them from the top.

Number	Range	Price	Extra Dies (4 pieces)	Weight
300-A	¼ to 2 inch.	200.00	3.00	800
300-A Motor.....	¼ to 2 inch.	300.00	3.00	1000
304-A	1 to 4 inch.	300.00	4.00	1400
304-A Motor.....	1 to 4 inch.	450.00	4.00	1700

Price on Motor Machines for Direct or Alternating Current.



Oster Nipple Jaws

With this attachment on the Nos. 300, 300-A, 304, and 304-A machines short nipples can be cut. They will hold thread to thread nipples. One set will hold one size nipple only. List price, per set of two pieces, 7.50.



Stocks and Dies for Pipe

Malleable Stock. Solid Dies

The E stock is made with Leader Screw

Size	B	O	DP	D	E
Eastern Size	0	1	1½	1½	2
Threads Pipe	½ to 1	½ to 1	¾ to 1½	1 to 1½	1½ to 2
Dimensions of Dies	2x½	2½x¾	3x¾	3x¾	4x1
Stock with Dies, Complete	9.50	15.00	13.50	13.50	20.00
Stock without Dies	3.50	5.00	6.00	6.00	9.50
Extra Dies, Right or Left	1.50	2.00	2.50	2.50	3.50
Extra Bushings	.25	.35	.45	.45	.60
Die Frames			.12	.12	.20



Vulcan Bijaw Chain Pipe Wrenches

The latest and best in pipe wrenches. Has double-ended reversible jaws, giving double life, or practically two wrenches at the price of one. The central swing of chain makes tool always right side up. If bolts securing jaws break, they can be replaced from any hardware store.

Number	30	31	32	33	33½	34	35
Capacity Size Pipe	½ to 2"	½ to 1½"	½ to 2½"	¾ to 4"	1 to 6"	1½ to 8"	2 to 12"
Price, each with Flat Link Chain	2.50	3.50	5.00	7.00	9.00	11.00	18.00
Extreme Length	13½ in.	20 in.	27 in.	37 in.	44½ in.	50½ in.	64½ in.
Weight	1½ lbs.	5½ lbs.	10 lbs.	16 lbs.	24 lbs.	31 lbs.	50 lbs.
Extra Jaws, Pair	1.00	1.75	2.75	4.00	4.75	5.50	7.50
Extra Flat Link Chain, each	.75	1.00	1.50	2.50	3.25	4.00	6.00



Agrippa Fittings Wrench

This wrench gets into the tight, narrow places, and bites on irregular forms where the broader chain wrenches fail. Just the thing for handling short nipple and flange connections. It has a single, narrow, powerful jaw for both pipe and fittings.

Number	20	21	22	23	23½	24	25
Price, each	2.50	3.50	5.00	7.00	9.00	11.00	18.00
Capacity, Pipe Fittings	½ to 2"	½ to 1½"	½ to 2½"	¾ to 4"	1 to 6"	1½ to 8"	2 to 12"
Length, over all	13½ in.	20 in.	27 in.	37 in.	44½ in.	50½ in.	64½ in.
Weight, about	2 lbs.	5 lbs.	9 lbs.	17 lbs.	22 lbs.	30 lbs.	50 lbs.
Extra Jaws, each	1.00	1.75	2.75	4.00	4.75	5.50	7.50
Extra Chains, each	1.00	1.25	1.75	2.75	3.75	4.50	6.75



Trimo Pipe Cutters

Number	1	2	3
Cuts Pipe	$\frac{1}{2}$ to $1\frac{1}{2}$	$\frac{1}{2}$ to 2	$1\frac{1}{2}$ to 3
Price	4.50	6.00	10.00
Extra Wheels .....	.30	.30	.40
Extra Rolls .....	.30	.30	.40

This cutter is regularly furnished with one wheel and two rolls, but can quickly be changed into a three wheel cutter by substituting two wheels for the two rolls.

The wheels have long hubs, affording ample bearing on the pins.



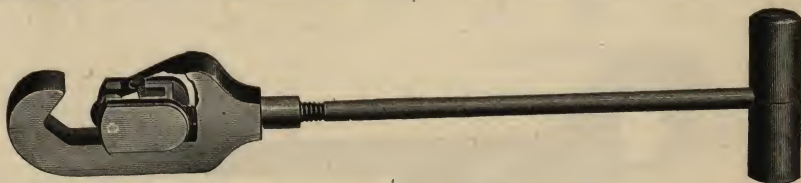
Saunders Pipe Cutters

Number	1	2	3	4	5
Cuts Pipe	$\frac{1}{2}$ to 1	1 to 2	2 to 3	$2\frac{1}{2}$ to 4	4 to 6
Price	3.00	4.50	11.00	18.00	28.00
Extra Wheels .....	.24	.32	.60	.60	.60
Extra Block and Wheel	1.25	1.75	2.75	3.50	4.00
Extra Rollers .....	.24	.32	.50	.50	.60
Extra Pins .....	.10	.10	.15	.15	.15



Barnes Three-Wheel Pipe Cutters

Number	1	2	3	4	5	6	$6\frac{1}{2}$	7
Cuts Pipe	$\frac{1}{2}$ to 1	$\frac{1}{2}$ to 2	$1\frac{1}{2}$ to 3	$2\frac{1}{2}$ to 4	4 to 6	6 to 8	8 to 10	9 to 12
Price	4.50	6.00	10.00	20.00	30.00	40.00	45.00	50.00
Extra Wheels .....	.25	.30	.40	.50	.75	.75	.75	.75
Extra Wheel Pins	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00



Stanwood Pipe Cutters

Number	1	2	3
Cuts Pipe	$\frac{1}{2}$ to 1	$\frac{3}{4}$ to 2	2 to 3
Price	1.50	2.75	7.00
Extra Wheels .....	.12	.18	.25
Extra Block and Wheel .....	.40	.65	1.25



No. 0



No. 2 and 2½



No. 1



No. 3, 4, 4½ & 5



No. 1½ & 1¾



Twin

“Bull-Dog” Wrenches

Number	Price per Doz.	Length	Holds Pipe	Holds Round Iron
0	3.00	4"	1-1"	1-1"
1	4.00	5 3/4"	1-1 1/2"	1-1 1/2"
1 1/2	5.00	5 3/4"	1-2"	1-2"
1 3/4	8.00	7 1/2"	1-2 1/2"	1-2 1/2"
2	12.00	9"	2-1"	2-1"
2 1/2	18.00	12 1/2"	2-1 1/2"	2-1 1/2"
3	24.00	16"	2-2"	2-2"
4	36.00	22"	2-2 1/2"	2-2 1/2"
4 1/2	45.00	24"	2-3"	2-3"
5	54.00	27"	2-3 1/2"	2-3 1/2"
Twin	18.00	10"	1-1 1/2"	1-1 1/2"



Black Finish—Polished Jaws



Polished and Nickel Plated

“Always Ready” Wrenches

Number	Price per Dozen		Length	Holds Square or Round Iron
	Black Finish Polished Jaws	Polished and Nickel Plated		
1	4.50	5.00	5	1-1 1/2"
2	6.25	6.75	7	1-1 1/2"
2 1/2	10.00	10.50	9 1/2	1-1 1/2"
3	15.25	16.00	11 1/2	2-2"



Atlas Pipe Wrenches

Size	10"	18"	24"	36"
Takes Pipe from	1 to 1 in.	1 1/2 to 2 in.	2 to 3 in.	3 to 4 1/2 in.
Price	2.25	4.00	6.00	12.00



Trimo Pipe Wrenches

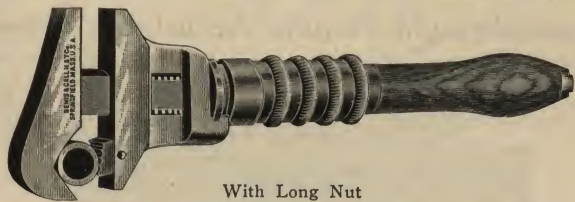
Length Open	inches	6	8	10	14	18	24	36	48
Takes Pipe	inches	$\frac{1}{2}$ to $\frac{3}{4}$	$\frac{1}{2}$ to $\frac{3}{4}$	$\frac{1}{2}$ to 1	$\frac{1}{2}$ to 1 $\frac{1}{2}$	$\frac{1}{2}$ to 2	$\frac{1}{2}$ to 2 $\frac{1}{2}$	$\frac{1}{2}$ to 3 $\frac{1}{2}$	1 to 5
Price	each	2.00	2.00	2.25	3.00	4.00	6.00	12.00	18.00
Movable Jaws	each	.67	.67	.75	1.00	1.33	2.00	4.00	6.00
Inserted Jaws	each	.25	.25	.33	.50	.55	.65	1.00	1.25
Frames	each	.25	.25	.33	.45	.55	.65	.75	1.00
Nuts	each	.20	.20	.27	.35	.42	.50	.65	.80



Stillson Pipe Wrenches

Length Open	inches	6	8	10	14	18	24	36	48
Takes Pipe	inches	$\frac{1}{2}$ to $\frac{3}{4}$	$\frac{1}{2}$ to $\frac{3}{4}$	$\frac{1}{2}$ to 1	$\frac{1}{2}$ to 1 $\frac{1}{2}$	$\frac{1}{2}$ to 2	$\frac{1}{2}$ to 2 $\frac{1}{2}$	$\frac{1}{2}$ to 3 $\frac{1}{2}$	1 to 5
Price	each	2.00	2.00	2.25	3.00	4.00	6.00	12.00	18.00
Jaws	each	.75	.75	.80	1.00	1.33	2.10	4.75	7.25
Frames	each	.35	.35	.40	.50	.55	.80	1.30	1.50
Wood Handles	each	.16	.16	.18	.25	.28			
Steel Handles	each	.95	.95	1.10	1.45	2.10	3.20	6.40	9.25
Nuts	each	.11	.11	.14	.17	.22	.35	.55	.95

Stillson Wrenches 6 to 18-inch have Wood Handles; 10 to 48-inch Steel Handles.



With Long Nut

Bemis & Call Combination Wrenches

Size	inches	8	10	12	15	18
Takes Pipe	inches	$\frac{1}{2}$ to $\frac{3}{4}$	$\frac{1}{2}$ to 1	$\frac{1}{2}$ to 1 $\frac{1}{2}$	$\frac{1}{2}$ to 2 $\frac{1}{2}$	$\frac{1}{2}$ to 3
Price, with long nut, bright	per dozen	23.00	25.25	28.50	40.50	72.00
Price, with short nut, bright	per dozen	21.00	23.00	26.00	37.00	66.00



Gas Pliers



Burner Pliers

Gas Pliers

Size	inches	5	6	7	8	9	10	12	14
Gas Pliers, Polished	per dozen			7.40	8.25	9.25	10.70	13.00	17.00
Burner Pliers, Polished	per dozen	6.50	6.50	10.00					



Combination Pliers

Size	Inches	6	8	10
Combination Pliers, black	per doz.	13.50	16.00	18.00
Combination Pliers, plated	per doz.	15.00	18.00	21.00

Gas Pliers, wire cutters, wrench and screw driver combined.



Adjustable "S" Wrenches

Size	Inches	6	8	10	12	14
Opens	Inches	$\frac{1}{2}$	1	$1\frac{1}{8}$	$1\frac{3}{8}$	2
Price	per dozen	7.20	9.00	12.00	15.00	21.00



Keystone Straight Handle Adjustable Wrenches

Size	Inches	6	8	10
Price	per dozen	7.20	9.00	12.00

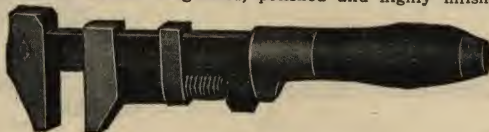
These wrenches are made of best quality forged steel. All parts case-hardened and interchangeable.



Machinists' Knife Handle Wrenches

Size	Inches	6	8	10	12	15	18	21
Price	per dozen	9.00	10.00	12.00	14.00	24.00	30.00	36.00

This wrench has the head and bar drop forged in one piece from selected steel. The jaws are case hardened and the entire wrench is ground, polished and highly finished. Every wrench warranted.



Regular Wrenches

Size	Inches	6	8	10	12	15
Price	per dozen	10.00	12.00	14.00	17.00	24.00

These wrenches have extra heavy wrought bar and head, forged from one piece; deep milled screw thread; opens full.



Single Head Engineers' Wrenches

15° Angle

No.	Size Bolts U. S. Standard Nuts	Opening Inches	Extreme Length	Price Unfinished	Price Semi-Fin.	Price Finished
00	$\frac{1}{8}$	$\frac{1}{8}$	2 $\frac{1}{2}$	.08	.12	.16
0	$\frac{1}{8}$	$\frac{1}{8}$	2 $\frac{1}{2}$	.09	.13	.18
1	$\frac{1}{8}$	$\frac{1}{8}$	3 $\frac{1}{2}$	.10	.15	.20
2	$\frac{1}{8}$	$\frac{1}{8}$	4 $\frac{1}{2}$	.12	.18	.24
3	$\frac{1}{8}$	$\frac{1}{8}$	5 $\frac{1}{2}$	.14	.21	.28
4	$\frac{1}{8}$	$\frac{1}{8}$	6 $\frac{1}{2}$	.17	.25	.34
5	$\frac{1}{8}$	$\frac{1}{8}$	7 $\frac{1}{2}$	.20	.30	.40
6	$\frac{1}{8}$	$\frac{1}{8}$	8 $\frac{1}{2}$	.26	.39	.52
7	$\frac{1}{8}$	$\frac{1}{8}$	9 $\frac{1}{2}$	.32	.48	.64
8	$\frac{1}{8}$	$\frac{1}{8}$	11 $\frac{1}{2}$	.42	.63	.84
9	$\frac{1}{8}$	$\frac{1}{8}$	13	.58	.87	1.16
10	1	1 $\frac{1}{8}$	14 $\frac{1}{2}$	.75	1.13	1.50
11	1 $\frac{1}{8}$	1 $\frac{1}{8}$	16 $\frac{1}{2}$	1.00	1.50	2.00
12	1 $\frac{1}{8}$	2	18 $\frac{1}{2}$	1.25	1.88	2.50
13	1 $\frac{1}{8}$	2 $\frac{1}{8}$	20 $\frac{1}{2}$	1.62	2.43	3.24
14	1 $\frac{1}{8}$	2 $\frac{1}{8}$	22 $\frac{1}{2}$	2.00	3.00	4.00
15	1 $\frac{1}{8}$	2 $\frac{1}{8}$	24	2.50	3.75	5.00
16	1 $\frac{1}{8}$	2 $\frac{1}{8}$	25 $\frac{1}{2}$	3.00	4.50	6.00
16 $\frac{1}{2}$	1 $\frac{1}{8}$	2 $\frac{1}{8}$	25 $\frac{1}{2}$	3.70	5.55	7.40
17	2	3 $\frac{1}{8}$	29 $\frac{1}{2}$	4.40	6.60	8.80
18	2 $\frac{1}{2}$	3 $\frac{1}{2}$	33	6.00	9.00	12.00
19	2 $\frac{1}{2}$	3 $\frac{1}{2}$	37	7.60	11.40	15.20
19 $\frac{1}{2}$	2 $\frac{1}{2}$	4 $\frac{1}{2}$	37	10.00	15.00	20.00
20	3	4 $\frac{1}{2}$	44	13.00	19.50	26.00
20A	3 $\frac{1}{2}$	5	44	16.00	24.00	32.00
20B	3 $\frac{1}{2}$	5 $\frac{1}{2}$	51	22.00	33.00	44.00
20C	3 $\frac{1}{2}$	5 $\frac{1}{2}$	51	25.00	36.00	47.00
20D	4	6 $\frac{1}{2}$	53	28.00	39.00	50.00
20E	4 $\frac{1}{2}$	6 $\frac{1}{2}$	51	40.00	60.00	80.00
20F	5	7 $\frac{1}{2}$	53	45.00	65.00	85.00



Double Head Set Screw Wrenches

15° Angle

No.	For Set Screws Size	Extreme Length	Price Un- finished	Price Semi- finished	Price Finished
65	$\frac{1}{8}$ & $\frac{1}{8}$	3 $\frac{1}{2}$	.13	.20	.26
66	$\frac{1}{8}$ & $\frac{1}{8}$	3 $\frac{1}{2}$	.13	.20	.26
67	$\frac{1}{8}$ & $\frac{1}{8}$	4	.15	.23	.30
68	$\frac{1}{8}$ & $\frac{1}{8}$	4	.15	.23	.30
69	$\frac{1}{8}$ & $\frac{1}{8}$	5	.18	.27	.36
70	$\frac{1}{8}$ & $\frac{1}{8}$	5	.18	.27	.36
71	$\frac{1}{8}$ & $\frac{1}{8}$	5 $\frac{1}{2}$	.22	.33	.44
72	$\frac{1}{8}$ & $\frac{1}{8}$	5 $\frac{1}{2}$	.22	.33	.44
73	$\frac{1}{8}$ & $\frac{1}{8}$	6 $\frac{1}{2}$	.27	.41	.54
74	$\frac{1}{8}$ & $\frac{1}{8}$	6 $\frac{1}{2}$	.27	.41	.54
75	$\frac{1}{8}$ & $\frac{1}{8}$	7 $\frac{1}{2}$	.33	.50	.66
76	$\frac{1}{8}$ & $\frac{1}{8}$	7 $\frac{1}{2}$	.33	.50	.66
77	$\frac{1}{8}$ & $\frac{1}{8}$	8 $\frac{1}{2}$	.40	.60	.80
78	$\frac{1}{8}$ & $\frac{1}{8}$	8 $\frac{1}{2}$	.40	.60	.80
79	$\frac{1}{8}$ & $\frac{1}{8}$	10	.48	.72	.96
80	$\frac{1}{8}$ & $\frac{1}{8}$	10	.48	.72	.96
81	$\frac{1}{8}$ & $\frac{1}{8}$	11 $\frac{1}{2}$	.58	.87	1.16
82	$\frac{1}{8}$ & $\frac{1}{8}$	11 $\frac{1}{2}$	.58	.87	1.16



Double Head Engineers' Wrenches

15° Angle

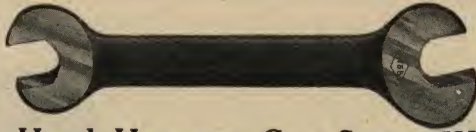
No.	Size Bolts, U. S. Standard Nuts	Openings, Inches	Extreme Length	Price, Unfinished	Price, Semi- finished	Price, Finished
21	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	3 $\frac{1}{2}$	.12	.18	.24
22	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	4	.13	.20	.26
23	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	4	.14	.21	.28
24	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	4 $\frac{1}{2}$	.16	.24	.32
25	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	4 $\frac{1}{2}$	.18	.27	.36
26	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	5 $\frac{1}{2}$	.20	.30	.40
27	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	5 $\frac{1}{2}$	.22	.33	.44
28	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	6 $\frac{1}{2}$	.24	.36	.48
29	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	6 $\frac{1}{2}$	.26	.39	.52
30	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	7 $\frac{1}{2}$	.28	.42	.56
31	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	7 $\frac{1}{2}$	.30	.45	.60
32	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	8 $\frac{1}{2}$	.32	.48	.64
33	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	8 $\frac{1}{2}$	.36	.54	.72
34	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	9 $\frac{1}{2}$	.40	.60	.80
35	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	9 $\frac{1}{2}$	.44	.66	.88
36	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	11 $\frac{1}{2}$	.51	.77	1.02
37	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	11 $\frac{1}{2}$	.53	.87	1.16
38	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	13 $\frac{1}{2}$	.65	.98	1.30
39	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	13 $\frac{1}{2}$	.76	1.14	1.52
40	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	15 $\frac{1}{2}$	.88	1.32	1.76
41	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	15 $\frac{1}{2}$	1.00	1.50	2.00
42	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	17 $\frac{1}{2}$	1.18	1.77	2.36
43	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	17 $\frac{1}{2}$	1.36	2.04	2.72
44	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	19 $\frac{1}{2}$	1.55	2.33	3.10
45	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	19 $\frac{1}{2}$	1.80	2.70	3.60
46	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	21 $\frac{1}{2}$	2.05	3.08	4.10
47	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	21 $\frac{1}{2}$	2.30	3.45	4.60
48	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	23 $\frac{1}{2}$	2.65	3.98	5.30
49	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	23 $\frac{1}{2}$	3.00	4.50	6.00
50	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	25 $\frac{1}{2}$	3.35	5.03	6.70
51	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	25 $\frac{1}{2}$	3.80	5.70	7.60
52	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	27 $\frac{1}{2}$	4.25	6.38	8.50
53	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	27 $\frac{1}{2}$	4.70	7.05	9.40
54	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	30 $\frac{1}{2}$	5.90	7.85	11.80
55	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	30 $\frac{1}{2}$	6.50	9.75	13.00
56	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	34 $\frac{1}{2}$	8.20	12.30	16.40
57	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$ & $\frac{1}{8}$	34 $\frac{1}{2}$	10.25	15.38	20.50



Double Head "S" Wrenches

22 $\frac{1}{2}$ ° Angle

No.	Openings, Inches	Thickness of Head	Length	Price, Unfinished	Price, Semi- finished	Price, Finished
220	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$	4	.13	.20	.26
221	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$	5	.17	.26	.34
222	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$	6	.22	.33	.44
223	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$	7	.25	.38	.50
224	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$	8	.30	.45	.60
225	$\frac{1}{8}$ & $\frac{1}{8}$	$\frac{1}{8}$	9	.36	.54	.72



Double Head Hexagon Cap Screw Wrenches

15° Angle

No.	For Hex- agon Head Cap Screws; Diameter of Screws, Inches	Openings Finished, Inches	Extreme Length	Thickness of Heads	Price, Un- finished	Price, Semi- finished	Price, Finished
723	$\frac{1}{8}$ & $\frac{1}{4}$	$\frac{1}{8}$ & $\frac{1}{4}$	4	$\frac{3}{16}$ & $\frac{1}{2}$	.13	.26
723a	$\frac{1}{8}$ & $\frac{1}{4}$	$\frac{1}{8}$ & $\frac{1}{4}$	4	$\frac{3}{16}$ & $\frac{1}{2}$	.13	.26
724	$\frac{1}{8}$ & $\frac{1}{4}$	$\frac{1}{8}$ & $\frac{1}{4}$	4 $\frac{1}{2}$	$\frac{3}{16}$ & $\frac{1}{2}$	.16	.32
725	$\frac{1}{8}$ & $\frac{1}{4}$	$\frac{1}{8}$ & $\frac{1}{4}$	4 $\frac{1}{2}$	$\frac{1}{2}$ & $\frac{3}{4}$	.18	.36
725a	$\frac{1}{8}$ & $\frac{1}{4}$	$\frac{1}{8}$ & $\frac{1}{4}$	4 $\frac{1}{2}$	$\frac{1}{2}$ & $\frac{3}{4}$	.18	.36
725b	$\frac{1}{8}$ & $\frac{1}{4}$	$\frac{1}{8}$ & $\frac{1}{4}$	4 $\frac{1}{2}$	$\frac{1}{2}$ & $\frac{3}{4}$	.18	.36
726	$\frac{1}{8}$ & $\frac{1}{4}$	$\frac{1}{8}$ & $\frac{1}{4}$	5 $\frac{1}{2}$	$\frac{1}{2}$ & $\frac{3}{4}$	.20	.40
727	$\frac{1}{8}$ & $\frac{1}{4}$	$\frac{1}{8}$ & $\frac{1}{4}$	5 $\frac{1}{2}$	$\frac{3}{8}$ & $\frac{1}{2}$	.22	.44
728	$\frac{1}{8}$ & $\frac{1}{4}$	$\frac{1}{8}$ & $\frac{1}{4}$	6 $\frac{1}{2}$	$\frac{3}{8}$ & $\frac{1}{2}$	.24	.48
729	$\frac{1}{8}$ & $\frac{1}{4}$	$\frac{1}{8}$ & $\frac{1}{4}$	6 $\frac{1}{2}$	$\frac{1}{2}$ & $\frac{3}{4}$	.26	.52
730	$\frac{1}{8}$ & $\frac{1}{4}$	$\frac{1}{8}$ & $\frac{1}{4}$	7 $\frac{1}{2}$	$\frac{1}{2}$ & $\frac{3}{4}$	.28	.56
731	$\frac{1}{8}$ & $\frac{1}{4}$	$\frac{1}{8}$ & $\frac{1}{4}$	7 $\frac{1}{2}$	$\frac{3}{8}$ & $\frac{1}{2}$	.30	.60
731a	$\frac{1}{8}$ & $\frac{1}{4}$	$\frac{1}{8}$ & $\frac{1}{4}$	7 $\frac{1}{2}$	$\frac{3}{8}$ & $\frac{1}{2}$	.30	.60
731b	$\frac{1}{8}$ & $\frac{1}{4}$	$\frac{1}{8}$ & $\frac{1}{4}$	7 $\frac{1}{2}$	$\frac{3}{8}$ & $\frac{1}{2}$	.30	.60
732	$\frac{1}{8}$ & $\frac{1}{4}$	$\frac{1}{8}$ & $\frac{1}{4}$	8 $\frac{1}{2}$	$\frac{3}{8}$ & $\frac{1}{2}$	.32	.64
732a	$\frac{1}{8}$ & $\frac{1}{4}$	$\frac{1}{8}$ & $\frac{1}{4}$	8 $\frac{1}{2}$	$\frac{3}{8}$ & $\frac{1}{2}$	.32	.64
733	$\frac{1}{8}$ & $\frac{1}{4}$	$\frac{1}{8}$ & $\frac{1}{4}$	8 $\frac{1}{2}$	$\frac{1}{2}$ & $\frac{3}{4}$	.36	.72
734	$\frac{1}{8}$ & $\frac{1}{4}$	$\frac{1}{8}$ & $\frac{1}{4}$	9 $\frac{1}{2}$	$\frac{1}{2}$ & $\frac{3}{4}$	.40	.80
735	$\frac{1}{8}$ & $\frac{1}{4}$	$\frac{1}{8}$ & $\frac{1}{4}$	9 $\frac{1}{2}$	$\frac{3}{8}$ & $\frac{1}{2}$	.44	.88
736	$\frac{1}{8}$ & $\frac{1}{4}$	$\frac{1}{8}$ & $\frac{1}{4}$	11 $\frac{1}{2}$	$\frac{3}{8}$ & $\frac{1}{2}$	.51	1.02
737	$\frac{1}{8}$ & $\frac{1}{4}$	$\frac{1}{8}$ & $\frac{1}{4}$	11 $\frac{1}{2}$	$\frac{1}{2}$ & $\frac{3}{4}$	.58	1.16



General Purpose Wrenches

22 $\frac{1}{2}$ ° Angle

No.	Manufacturers' Standard Nuts, Size Bolts, Inches	Openings Finished, Inches	Extreme Length	Thickness of Heads	Price Unfinished	Price Semi-finished	Price Finished
500	$\frac{1}{8}$ & $\frac{1}{4}$	$\frac{1}{8}$ & $\frac{1}{4}$	6 $\frac{1}{2}$	$\frac{7}{32}$ & $\frac{1}{2}$	.13	.26
501	$\frac{1}{4}$ & $\frac{3}{8}$	$\frac{1}{4}$ & $\frac{3}{8}$	7 $\frac{1}{2}$	$\frac{1}{4}$ & $\frac{3}{4}$	.17	.34
502	$\frac{3}{8}$ & $\frac{1}{2}$	$\frac{3}{8}$ & $\frac{1}{2}$	8 $\frac{1}{2}$	$\frac{1}{2}$ & $\frac{3}{4}$	.22	.44
503	$\frac{1}{2}$ & $\frac{3}{4}$	$\frac{1}{2}$ & $\frac{3}{4}$	9 $\frac{1}{2}$	$\frac{3}{4}$ & 1	.28	.56	
504	$\frac{3}{4}$ & 1	$\frac{3}{4}$ & 1	10 $\frac{1}{2}$	1 & $\frac{1}{2}$	.34	.68

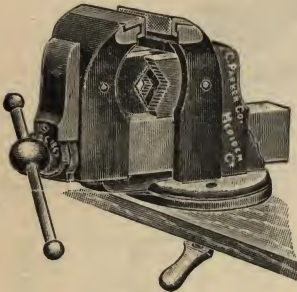
For use in erecting or dismantling plows, carriages, wagons, etc., and for general service where a light and long wrench is desired.



Double Head Angle Wrenches

22 $\frac{1}{2}$ ° Angle

No.	Length	Thickness of Heads	For Standard Hex. Nuts for Bolts	Milled Openings Unfinished,		Openings for Semi-finished and Finished	Price Semi-finished	Price Finished
				Size of Openings	Price			
550	4 $\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{8}$ & $\frac{1}{4}$	$\frac{3}{8}$ & $\frac{1}{2}$	.15	$\frac{1}{8}$ & $\frac{1}{4}$	.23	.30
551	5 $\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{8}$ & $\frac{1}{4}$	$\frac{1}{2}$ & $\frac{3}{4}$	.20	$\frac{1}{4}$ & $\frac{3}{8}$	.30	.40
552	7	$\frac{1}{2}$	$\frac{1}{8}$ & $\frac{1}{4}$	$\frac{1}{2}$ & $\frac{3}{4}$	.25	$\frac{3}{8}$ & $\frac{1}{2}$	.38	.50
553	8	$\frac{3}{8}$	$\frac{1}{8}$ & $\frac{1}{4}$	$\frac{3}{4}$ & 1	.30	$\frac{1}{2}$ & $\frac{3}{4}$	.45	.60
554	9 $\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{8}$ & $\frac{1}{4}$	$\frac{3}{4}$ & 1	.38	$\frac{3}{4}$ & 1 $\frac{1}{8}$	.57	.76
555	10 $\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{8}$ & $\frac{1}{4}$	1 $\frac{1}{8}$ & 1 $\frac{1}{2}$	.50	1 $\frac{1}{8}$ & 1 $\frac{1}{2}$	.75	1.00



Swivel Bottom

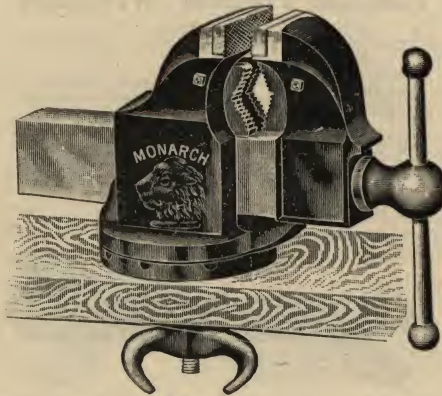


Stationary Bottom

Parker Combination Pipe Vises

Number	Price	Width Jaw Inches	Holds Pipe Inches	Weight Pounds	Style Bottom
87	16.00	3½	½ to 2	41	Swivel
88	20.00	4½	½ to 3	59	Swivel
288½	28.00	4½	½ to 4	105	Swivel
289½	35.00	5½	½ to 6	155	Swivel
88½	28.00	4½	½ to 4	94	Stationary
89½	35.00	5½	½ to 6	141	Stationary

The steel faces are milled and fitted to the jaws, and are renewable.



Monarch Combination Pipe Vises

Number	Price	Width Jaw Inches	Holds Pipe Inches	Weight Pounds	Style Bottom
401	16.00	3½	½ to 2½	44	Swivel
402	20.00	4½	½ to 3	65	Swivel
403	28.00	5	½ to 4	110	Swivel

A good strong, serviceable combination pipe vise, pipe jaws cut and milled from best quality of steel, and are reversible, thus giving double wear. Quality and finish unsurpassed.



Vulcan Chain Pipe Vise

This is the handiest little vise made. It is practically unbreakable, has a quick action and a positive, non-crushing grip. Just the thing for the tool bag; very compact, 6"x8"x8" folded, and weighing 10 pounds.

No.	For Pipe, Sizes	Price, each	Prices, extra parts						
			Base	Jaws	Chain	Handle	Screw	Nut	Washer
2	$\frac{1}{2}$ to 4	5.00	1.00	2.25 pr.	1.25	.50	.20	.60	.20



Shut

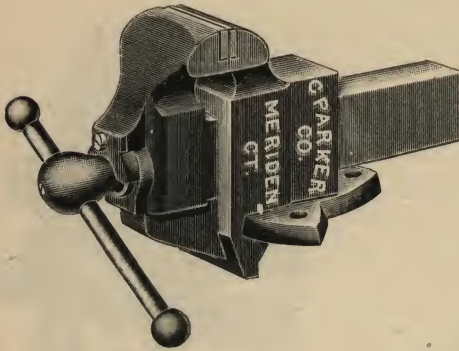


Open

Malleable Iron Pipe Vises

The Malleable Iron Pipe Vise is preferable to the cast iron vise in every respect, being much lighter, more durable, and cheaper. Has interchangeable cut steel jaws, and is constructed to do the heaviest work, the strength being put where it is most required. These vises are hinged to facilitate putting in and taking out pipe.

- No. 1 takes from $\frac{1}{2}$ to 2 inch pipe; weight, 16 lbs.....each, 10.00
No. 2 takes from $\frac{1}{2}$ to 3 inch pipe; weight, 26 lbs.....each, 14.00



Parker Stationary Vulcan Vises

SOLID STEEL FACED JAWS, EXTRA STRONG SLIDE AND SCREW

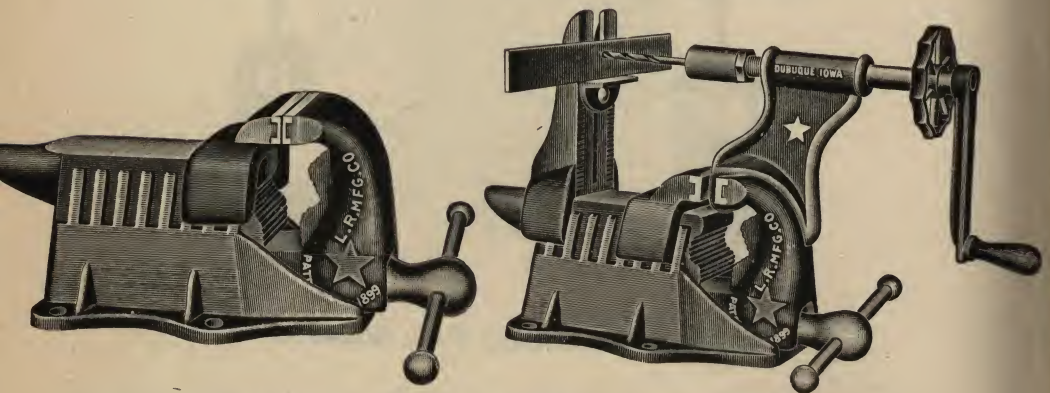
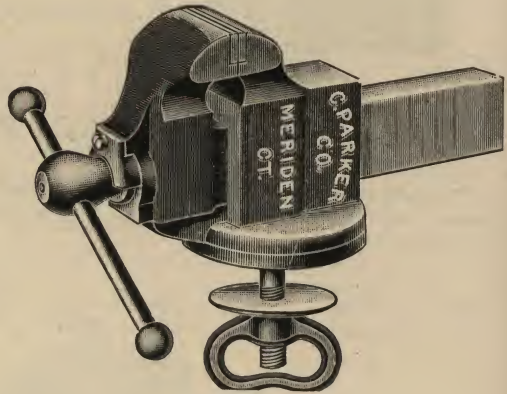
Designed to supply the requirements for a strong, durable, medium priced Vise.

No.	Price	Weight	Jaw Inches	Vise Opens
A	6.00	25	3½	5½
B	7.00	31	3¾	5
C	8.50	48	4½	5½
D	10.00	62	4¾	6½
E	13.00	75	5	8
F	18.50	105	5½	9
G	25.00	150	6	

Parker Swivel Vulcan Vises

SOLID STEEL FACED JAWS, EXTRA STRONG SLIDE AND SCREW

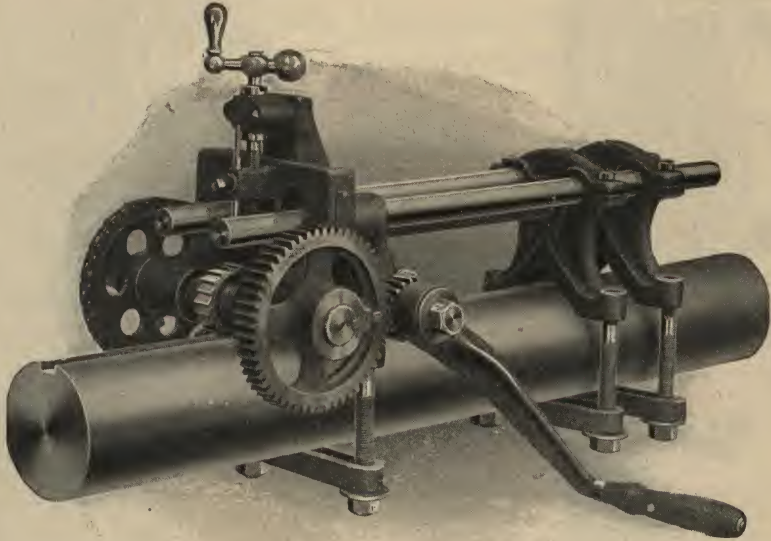
No.	Price	Weight	Jaw Inches	Vise Opens
AA	7.50	28	3½	5½
BB	8.75	37	3¾	5
CC	10.50	53	4½	5½
DD	12.50	68	4¾	6½
EE	16.00	86	5	8
FF	22.00	119	5½	9
GG	30.00	156	6	



The Star Vise

Just the thing for mill, elevator, shop or farm use. It is strong, well made and durable. Opens to 12" between jaws. Holds pipe ¼" to 2". Weighs 50 pounds. The drill attachment is firmly held in vise, has a separate feed screw for drilling, and an adjustable work support.

Vise only	3.00
Vise with Drill Attachment	5.00



Burr Portable Shaft Keyseater, No. 1

This Machine will mill keyseats in the middle or on the ends of shafting from 1¼ to 5 inches in diameter without removing it from its hangers or boxes. It can be slipped over heavy shafting or spindles and keyseats cut accurately and rapidly. It will mill a keyseat 12 inches long without resetting, and as there is a sliding support under the cutters at all times, it cuts without chatter or jar and produces keyseats with straight sides and smooth bottoms.

The Machine is provided with an automatic feed while cutting, but this feed may be disengaged, if desired, and the cutter-head fed by hand. The feed worm is of steel, of large diameter, and the worm wheel is hobbled. In resetting the feed worm is slipped out of mesh and the lead-screw is turned directly with the same handle that is used on the down-feed.

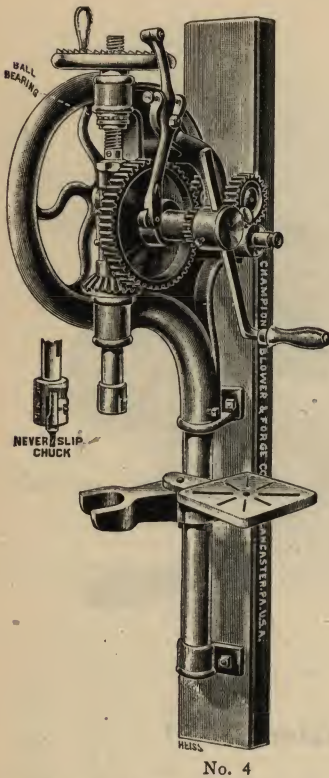
The two clamp heads, one of which is tapped and remains on the back of the tool, are always firmly fastened to the shaft being keyseated; the main or cutter head is fed along the shaft, its binder being tightened only enough to steady the cut. The adjustment of the cutter arbor, which is of steel and $1\frac{3}{8}$ inches in diameter, so that the different widths of keyseats shall be central in the shaft, is rapidly made without the use of spacing collars. This is accomplished by loosening the driving gear and the larger sprocket, and after placing the cutters central, again fastening these parts.

A set of five milling cutters, made from special steel, is furnished with each machine. By using one or more of which on the spindle, keyseats of any of the following sizes may be milled full width at one operation: $\frac{1}{4}$, $\frac{1}{8}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{11}{8}$, $\frac{3}{4}$, $\frac{15}{8}$, $\frac{7}{8}$, 1 , $1\frac{1}{8}$ and $1\frac{1}{2}$ inches. Weight about 75 pounds.

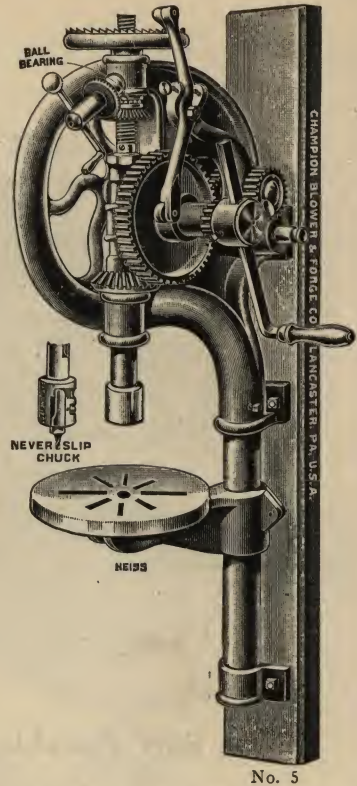
Price 40.00

Machine Tools

We often have bargains in new and slightly used machine tools such as lathes, planers, milling machines, drill presses, grinders, etc., etc. It will pay you to write us when in the market.



No. 4



No. 5

The Champion No. 4 New Improved 18-Inch Swing Three-Geared Ball-Bearing Upright Self-Feed Blacksmith Post Drill

This Drill is full Back-Geared with improved third-gear principle, which gives the second speed the same crank motion as on the first speed, the improved third-gear being part of the handle hub. It is therefore disengaged when using the first speed. It is supplied with latest and most improved automatic self-feed. It has two speeds with double-journal bearings to all working parts. It will drill to the center of an 18-inch circle. Diameter of the spindle $1\frac{1}{4}$ inches. It has an up-and-down run of 5 inches. Spindle bored like Never Slip Chuck to take in $\frac{3}{4}$ -inch straight shank Drills. If specially ordered, bored to take in 5-8 or 41-64. Drills 1-64 to 1 1-2 inch holes.

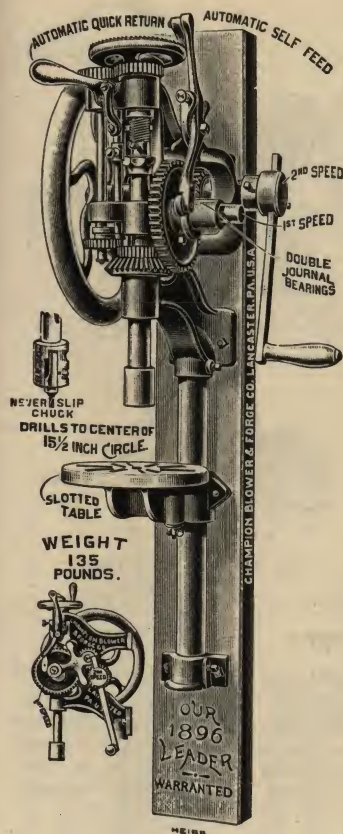
No. 4 Champion Improved 18-inch Swing Three-Geared Ball-Bearing Self-Feed Blacksmith Post Drill. Weight 200 pounds.....	20.00
No. 4 Champion 18-inch Swing Three-Geared Self-Feed Blacksmith Post Drill, without Ball Bearings. Weight 200 pounds.....	17.50
Extra for Power.....	3.00

The No. 5 Champion 20-Inch Swing Three-Geared Ball Bearing Upright Self-Feed Blacksmith Post Drill

WITH QUICK-RETURN AND HAND-FEED HANDLE

The 20-inch swing places this Drill in a class of its own as a first-class medium-priced Drill, as the large swing enables work of much larger range to be drilled. It has full back gear, with latest improved third gear principle, which gives the second speed the same crank motion as on the first speed. This Drill is supplied with latest Improved Automatic Self-Feed. It has two speeds with double journal bearings to all working parts. It drills to the center of a 20-inch circle. Diameter of spindle $1\frac{1}{4}$ inches. It has an up-and-down run of 5 inches. Spindle is bored like Never Slip Chuck to take in $\frac{3}{4}$ -inch straight shank Drills. If specially ordered, bored to take in 5-8 or 41-64. It drills holes from 1-64 to 1 1-2 inches.

No. 5 Champion 20-Inch Swing Three-Geared Ball Bearing Upright Self-Feed Blacksmith Post Drill, with Quick-Return and Hand-Feed Handle. Weight 240 lbs.....	25.00
Extra for Power.....	4.00



The Champion No. 96 Quick-Return Blacksmith Self-Feed Post Drill

WITH AUTOMATIC QUICK-RETURN AND SELF-FEED

One-third time saved by using the No. 96 Patent Quick-Return Drill. It stands without a rival and is placed on the market entirely on its merits.

The quick-return lever is thrown into place while the drill continues in motion, where it remains until the bit is raised out of the work, when it automatically stops, requiring no attention whatever from the operator, and is again ready to start the next hole.

It is back-gearred with improved third-gear principle. The crank has a forward motion on both 1st and 2d speed, the third gear being part of the handle hub and only in use as a gear when on the 2d speed, thus saving the continuous labor of pulling along an intermediate or third gear while working the first speed.

Drills to the centre of 15½-inch circle. All gears are protected with double journal bearings. All bearings are ground to a working fit out of the solid metal, precisely like all drills costing from \$100 to \$500. It has two speeds. Will drill from 1-64 to 1¼-inch hole. Weight 135 lbs. Spindle bored like Never Slip Chuck to take in ½-inch straight shank Drills, 41-64 will be furnished if specially ordered.

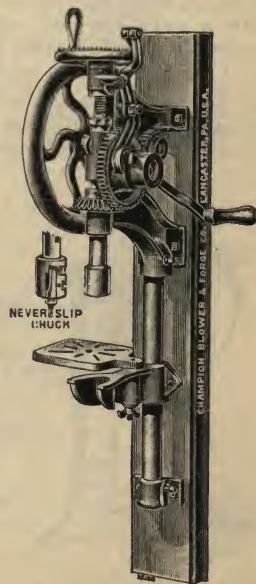
No. 96 Champion Quick-Return Blacksmith Self-Feed

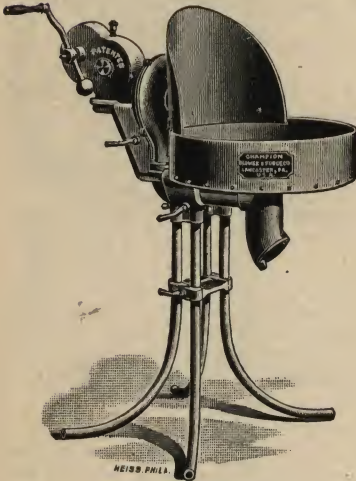
Post Drill. Weight 135 lbs.....	12.50
Extra for Power.....	3.00

The Champion No. 90 Self-Feed Blacksmith Post Drill

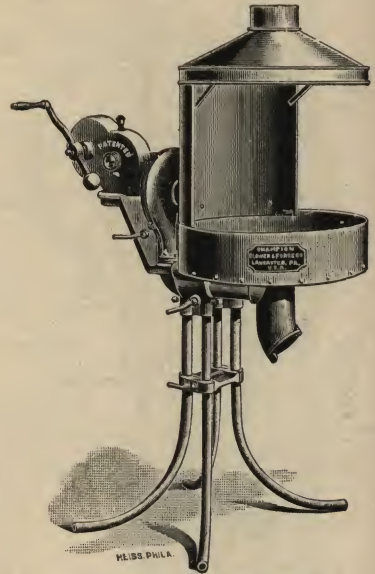
No. 90 Champion Automatic Self-Feed Blacksmith Post Drill is built after the well known 1890 Pattern \$10.00 drill, with several very valuable improvements added. It is well built, has a slotted square table lathe-turned. It is a strong and stoutly proportioned Drill for a drill of this size. Has full back gear with one speed. Drills to the center of a 14½-inch circle. The bearings are all ground from the solid metal, and is built in the same perfect mechanical manner as the better grades, as only skilled mechanics are employed. Will bore holes up to 1 inch. Has spindle 1½-inch in diameter; spindle has an up-and-down run of 3 inches. Is bored like Never Slip Chuck to take in ½-inch straight shank Drills. If specially ordered will be bored to take in 5-8 inch or 41-64 inch.

No. 90 Champion Self-Feed Blacksmith Post Drill. Weight	
100 lbs.....	8.50
Extra for Power.....	3.00





No. 401 With Shield



No. 402 With Half Hood

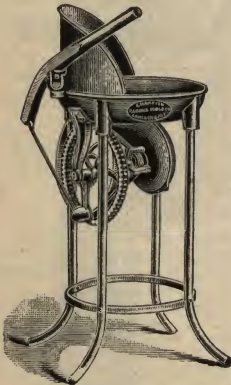
Champion Steel Forges

WITH ADJUSTABLE BALL BEARINGS

This is a line of high grade steel forges for use by bridge builders, boiler makers, structural iron workers, tool makers, tank builders and repair shops. Can easily be knocked down and moved or shipped. Will weld $3\frac{1}{2}$ to 4 inch iron in ten minutes. Crank turns either way. The one with shield is for outdoor work, with half hood for indoor work, and with closed hood for use where combustible material is kept.

All have 18" diameter hearth, fan 9" diameter, height 30".

No. 401 with shield, weight 115 lbs.....	35.00
No. 402 with half hood, weight 120 lbs.....	38.00
No. 403 with closed hood, weight 125 lbs.....	40.00



No. 55 With Shield

Champion Ratchet Lever Forges

No. 55 Lancaster Ratchet Lever Forge is made with double ratchet, strong and substantial, used by Bridge, Boiler and Tank Builders, Miners, Prospectors, Elevated Railroad Builders, Farmers, etc.

No. 55 Champion Lancaster Ratchet Lever Forge with Shield. Hearth 18 inches in diameter, height 30 inches, fan 8 inches, weight 75 lbs.....	24.00
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No. 56 Champion Lancaster Ratchet Lever Forge with Half Hood. Hearth 18 inches in diameter, height 30 inches, fan 8 inches, weight 75 lbs.....	27.00
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No. 57 Champion Lancaster Ratchet Lever Forge with Closed Hood. Hearth 18 inches in diameter, height 30 inches, fan 8 inches, weight 80 lbs.....	30.00
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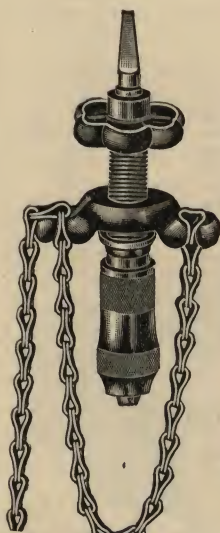
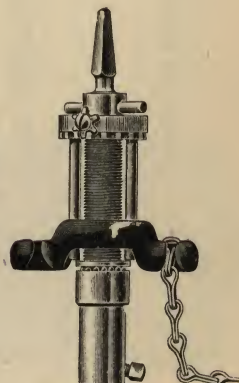
Champion Bench Crank Forges



No. 21 With Shield

The Champion Bench Crank Forges are especially intended for light work, being very compact and easily moved. They have short legs, so when used should be set on a box or bench. Will produce a welding heat on 1-inch iron in ten minutes. It is a very convenient Forge for Prospectors, Farmers, etc.

No. 21 Champion Bench Crank Forge with Shield. Hearth 14x17 inches, fan 7 inches, weight 45 lbs.....	16.00
No. 22 Champion Bench Crank Forge with Half Hood. Hearth 14x17 inches, fan 7 inches, weight 55 lbs.....	18.00
No. 23 Champion Bench Crank Forge with Full Hood. Hearth 14x17 inches, fan 7 inches, weight 65 lbs.....	20.00

Style C
Hand FeedStyle C
Automatic FeedStyle A, B & D
Hand FeedStyle A, B & D
Automatic Feed

Buckeye Ball Bearing Chain Drills

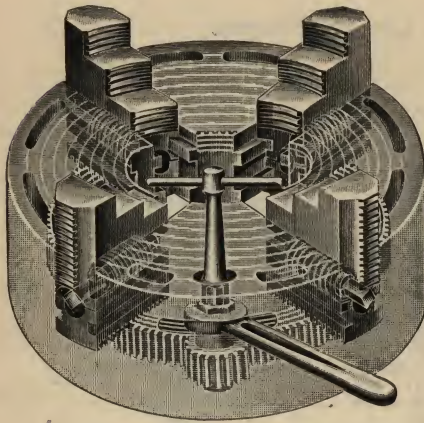
FOR USE WITH ORDINARY BIT BRACE

Style C has japanned castings, nickel plated; universal chuck with alligator jaws taking either round or square shank drills from $\frac{1}{8}$ to $\frac{1}{2}$ -inch.

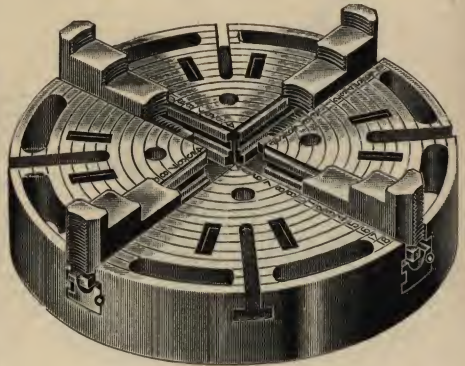
C, Hand Feed, per doz..... 20.00 C, Automatic Feed, per doz..... 27.00

Styles A, B and D are japanned and polished. Style A takes standard $\frac{1}{4}$ -inch round shank drills, Style B standard square shank drills, and Style D is fitted with a combination chuck which takes either round or square shank drills.

A and B, Hand Feed, per doz..... 12.00 D, Hand Feed, per doz..... 13.20
A and B, Automatic Feed, per doz..... 19.00 D, Automatic Feed, per doz..... 20.20



Spur Geared Scroll Chuck



I. X. L. Independent Chuck

Westcott Spur Geared Combination Scroll Chucks

This is a new chuck, THE BEST THAT CAN BE MADE, and is the only spur geared chuck on the market. It is Independent, Universal, Eccentric. Jaws reversible.

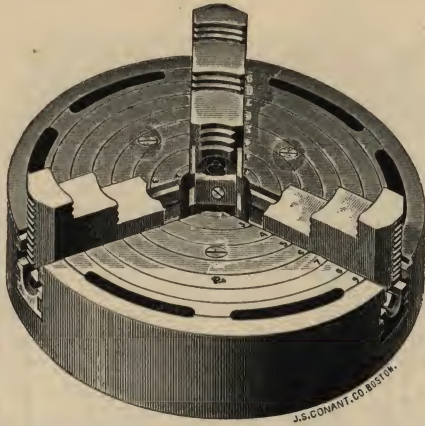
Diameter Over All Inches	Will Hold Inside of Jaw, Inches	Diameter of Recess for Face Plate Inches	Three Jaws Price	Four Jaws Price	Unfinished Face Plates
6	6½		25.00	31.00	.50
8	8½	3½	26.00	32.00	.25
10½	12	5	34.00	42.00	.50
13½	15	6	44.00	56.00	.75
16	18	6½	52.00	64.00	1.00
18½	21½	7½	62.00	75.00	1.50
21½	26	9½	80.00	95.00	2.00
24	30	10	100.00	120.00	3.00
27	33	12½	135.00	160.00	3.50
30	36	12½	170.00	200.00	4.00
36	43	15	230.00	285.00	5.00

Westcott I. X. L. Independent Lathe Chucks

JAWS REVERSIBLE

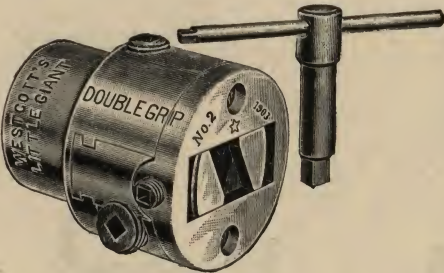
Diameter Inches	Capacity Inches	Approximate Weight	Diameter of Center Hole Inches	Diameter of Recess for Face Plate Inches	Price with 3 or 4 Jaws	Unfinished Face Plate Castings
4½	5½	14	1	3½	14.00	.25
6	6½	22	1½	5½	18.00	.75
8	9	39	1½	4½	22.00	.50
10½	12	51	2	5½	26.00	.75
12	15	72	2½	5½	30.00	.75
13½	17	88	3	6½	32.00	1.00
14	18	92	3	6½	34.00	1.00
16	20	139	3	7½	38.00	1.50
18½	23	180	4	8	44.00	2.00
21½	26	228	4	9½	55.00	3.00
24	30	241	4½	10	65.00	3.00
27	33	400	4½	12½	95.00	3.50
30	36	447	6	12½	120.00	4.00
36	43	550	7½	15	210.00	5.00

Three jawed I X L Independent Chucks above 18½ inches in diameter are made to order only.
Send for special catalogue of Chucks.

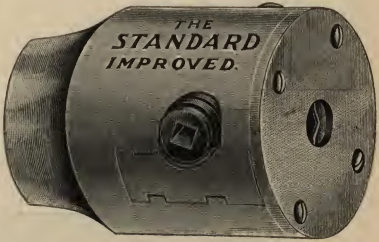


Westcott Scroll Combination Lathe Chucks
INDEPENDENT, UNIVERSAL, ECCENTRIC, JAWS REVERSIBLE

Diameter Over All Inches	Will Hold Inside of Jaws, Inches	Diameter of Recess for Face Plate Inches	Three Jaws Price	Four Jaws Price	Unfinished Face Plates
4 $\frac{1}{2}$	5 $\frac{1}{2}$		24.00	30.00	.50
6	6 $\frac{1}{2}$		25.00	31.00	.50
7 $\frac{1}{2}$	8	3 $\frac{3}{4}$	26.00	32.00	.25
10 $\frac{1}{2}$	12	5	34.00	42.00	.50
13 $\frac{1}{2}$	15	6	44.00	56.00	.75
16	18	6 $\frac{3}{4}$	52.00	64.00	1.00
18 $\frac{1}{2}$	21 $\frac{1}{2}$	7 $\frac{3}{4}$	62.00	75.00	1.50
21 $\frac{1}{2}$	26	9 $\frac{1}{2}$	80.00	95.00	2.00
24	30	10	100.00	120.00	3.00
27	33	12 $\frac{1}{2}$	135.00	160.00	3.50
30	36	12 $\frac{3}{4}$	170.00	200.00	4.00
36	43	15	230.00	285.00	5.00



Little Giant



Standard

Little Giant Drill Chucks

Number	00	0	1	2	2½	3	4	
Price	each	7.00	8.00	9.00	10.00	11.00	18.00	20.00
Diameter	inches	1½	2½	3	3½	4	6	6½
For Drills	inches	0 to ¼	0 to ½	0 to ¾	0 to 1	0 to 1 Ex. Strong	0 to 1½	0 to 2

Standard Improved Drill Chucks

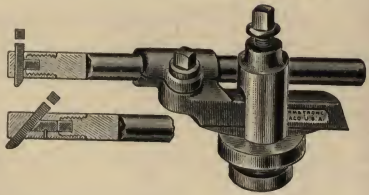
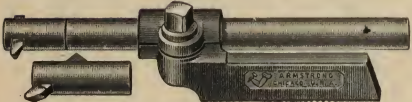
Number	00	0	1	2	3
Price	6.00	6.50	7.00	8.00	10.00
Diameter	1 $\frac{1}{8}$	1 $\frac{1}{2}$	2 $\frac{1}{8}$	2 $\frac{1}{2}$	3 $\frac{1}{8}$
For Drills	0 to $\frac{1}{4}$	0 to $\frac{1}{2}$	0 to $\frac{3}{4}$	0 to $\frac{1}{2}$	0 to 1



Armstrong Tool Holders

Each tool is carefully packed in a cardboard box, and price includes one drop forged wrench and two self-hardening steel cutters, ground to shape.

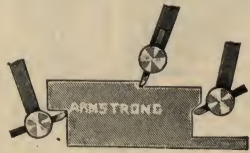
No. Left Hand	No. Str't.	No. Right Hand	Price Complete	Extra Cutters Each	Size of Holder Inches	Size of Square Cutters	Net Weight Lbs.
00-L	00-S	00-R	1.60	.10	1 1/2 x 3/4 x 4 1/2	1 1/2	1 1/2
0-L	0-S	0-R	1.65	.12	1 3/4 x 1 x 5	1 3/4	1 3/4
1-L	1-S	1-R	1.80	.18	1 3/4 x 1 1/2 x 6	1 3/4	1 3/4
2-L	2-S	2-R	2.30	.25	2 x 1 1/2 x 7	2	2
3-L	3-S	3-R	3.00	.35	2 x 1 1/2 x 8	2	3 1/2
4-L	4-S	4-R	3.80	.45	2 x 1 1/2 x 9	2 1/2	4 1/2
5-L	5-S	5-R	4.75	.65	1 x 2 x 11	2 1/2	7 1/2
6-L	6-S	6-R	7.00	1.00	1 1/2 x 2 1/2 x 13	3	11 1/2
7-L	7-S	7-R	12.00	1.75	1 1/2 x 2 1/2 x 16	3 1/2	20
750-L	750-S	750-R	17.50	2.50	1 1/2 x 2 1/2 x 18	4	25
800-L	800-S	800-R	23.00	3.25	1 1/2 x 2 1/2 x 20	4 1/2	37



Armstrong Boring Tools

Each set is carefully packed in a cardboard box. It consists of holder and bar with straight and 45 degree end caps, two cutters, (ground for boring) and a double end wrench.

Number	Price Complete	Extra Cutters Each	Size of Shank Inches	Diam. of Bar Inches	Size of Square Cutter	Weight
00B	3.00	.12	1 1/2 x 3/4	1 1/2	1 1/2	1 lb. 12 oz.
8	3.00	.12	1 3/4 x 1	1 3/4	1 3/4	2 lb. 0 oz.
9	3.60	.15	1 3/4 x 1 1/4	1 3/4	1 3/4	4 lb. 0 oz.
10	4.75	.20	2 x 1 1/2	2	2	7 lb. 5 oz.
11	6.75	.30	2 x 1 1/2	2 1/4	2 1/4	12 lb. 5 oz.
12	10.00	.40	2 x 1 1/2	2 1/2	2 1/2	17 lb. 12 oz.
13	14.00	.50	1 x 2	1 1/2	1 1/2	26 lb. 0 oz.



Armstrong Planer Tools

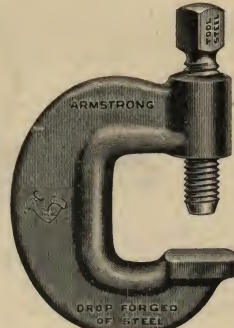
Each tool is packed in a cardboard box, and price includes a drop forged wrench and two self-hardening steel cutters ground to shape.

Number	Price Complete	Extra Cutters Each	Size of Shank Inches	Length Inches	Size Cutter	Weight
40	2.75	.20	1 x 1	7	1 x 1	2 lb. 0 oz.
401	3.50	.30	1 1/4 x 1 1/4	8 1/2	1 1/4 x 1 1/4	3 lb. 0 oz.
41	4.50	.40	1 1/2 x 1 1/2	10	1 1/2 x 1 1/2	4 lb. 11 oz.
42	7.00	.70	1 1/2 x 1 1/2	13	1 1/2 x 1 1/2	10 lb. 9 oz.
43	11.00	1.00	1 3/4 x 2	16	1 3/4 x 2	18 lb. 13 oz.
44	16.00	2.00	1 3/4 x 2 1/2	19	1 3/4 x 2 1/2	32 lb. 8 oz.
45	25.00	3.00	2 x 2 1/2	22	2 x 2 1/2	50 lb. 0 oz.

Ask for complete catalogue of Armstrong tools.



Lathe Dog



"C" Clamp

Armstrong Clamp Lathe Dogs

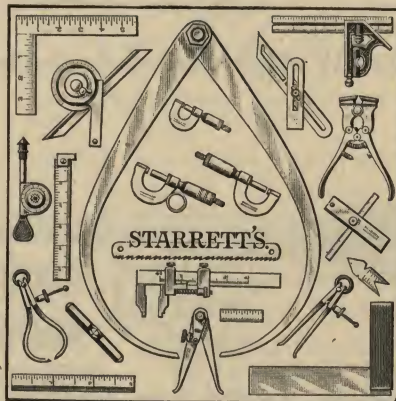
This dog is so constructed as to combine the convenient features of the clamp dog with the simplicity and strength of the ordinary lathe dog. It will accommodate itself readily to work of any shape and will hold it securely and squarely, being especially adapted for use on finished work which would be liable to be damaged by the set screw of a common lathe dog. The sliding jaw is operated by a loose fitting U bolt, and can be adjusted to size very quickly, a wrench being necessary to tighten only. One advantage of this dog is that it can be adjusted without removing work from centers. It possesses a wide range of adjustment.

Number	1	2	3	4	5	6	7
Price	.65	.90	1.40	2.00	2.90	4.00	5.00
Capacity	$\frac{1}{8}$ to $\frac{3}{4}$	$\frac{1}{2}$ to 1	$\frac{3}{8}$ to $1\frac{1}{2}$	$\frac{1}{2}$ to 2	$\frac{3}{4}$ to 3	1 to 4	$1\frac{1}{2}$ to 5
Weight	$\frac{3}{4}$	$1\frac{1}{2}$	$3\frac{1}{2}$	$4\frac{1}{2}$	$9\frac{1}{2}$	$15\frac{1}{2}$	20

Armstrong Drop Forged "C" Clamps

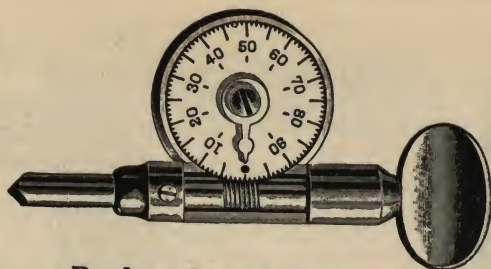
Improved design with extra long hub for screw. Extra heavy tool steel with beveled point.

Number	9	10	11	12	13	14	15	16	18	20	22
Price	.50	.75	1.25	1.75	2.50	3.25	4.00	5.00	7.00	9.50	12.50
Capacity	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{2}$	$2\frac{1}{2}$	$3\frac{1}{2}$	$4\frac{1}{2}$	$6\frac{1}{2}$	$8\frac{1}{2}$	$12\frac{1}{2}$
Center Screw to Back	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{2}$	$2\frac{1}{2}$	$3\frac{1}{2}$	$4\frac{1}{2}$	$6\frac{1}{2}$	$8\frac{1}{2}$	$12\frac{1}{2}$
Size of Screw	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{2}$	$2\frac{1}{2}$	1	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$



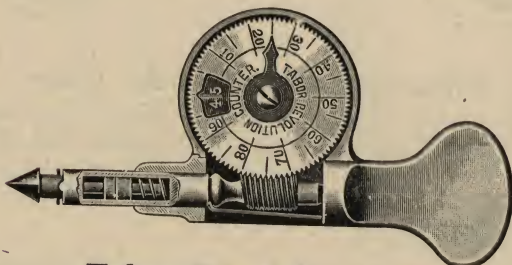
Starrett's Tools

A complete descriptive catalogue and price list of these well known tools will be sent upon application.



Pocket Speed Indicator

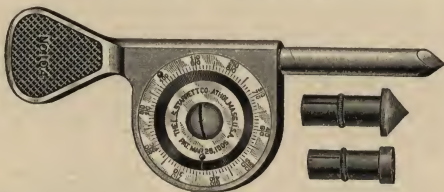
Price each75



Tabor Speed Indicator

This is a good, simple, stop motion revolution counter at a reasonable price. It has two dials, and will register a continuous count of 5,000 revolutions. Cut shows a reading of 4,525 revolutions.

Price each 1.00



Starrett High Speed Indicator

A high grade single dial indicator. Each 100 revolutions is noted by a small knob on dial passing under thumb of operator.

Price each in pasteboard box 1.00
Price each in leatherette case 1.50



Starrett Registering Speed Indicator

The capacity of this indicator is 5,000 revolutions. It is provided with frictionless bearing for high speed work. The hard rubber handle makes it safe for use on electrical machinery.

Price each in pasteboard box 3.00
Price each in leatherette case 3.50



Price per Dozen.

Flat Bastard

List of Nov. 1, 1899.

Files

MILL AND ROUND

Length	4	5	6	7	8	9	10	12	14	16	18	20
Bastard	3.00	3.20	3.50	3.90	4.30	4.90	5.60	7.50	10.70	14.70	20.20	27.40
Second cut	3.50	3.80	4.00	4.60	4.90	5.80	6.40	8.60	12.20	16.80	22.70	30.70
Smooth	3.90	4.10	4.50	4.90	5.40	6.30	7.00	9.40	13.10	17.90	24.30	32.90

FLAT

Length	4	5	6	7	8	9	10	12	14	16	18	20
Bastard	3.70	3.90	4.30	4.80	5.30	6.80	7.00	9.70	13.30	17.80	23.90	31.50
Second cut	4.30	4.60	4.80	5.50	6.10	7.20	8.10	11.00	15.30	20.10	26.80	35.30
Smooth	4.70	4.90	5.30	6.10	6.60	7.90	8.70	12.10	16.70	22.30	29.20	38.30

SQUARE

Length	4	5	6	7	8	9	10	12	14	16	18	20
Bastard	3.80	4.10	4.60	5.10	5.50	6.60	7.40	10.20	13.90	18.70	25.10	32.80
Second cut	4.60	4.80	5.10	5.80	6.30	7.70	8.50	11.50	16.10	21.20	28.20	36.70
Smooth	4.90	5.30	5.50	6.30	7.00	8.30	9.10	12.80	17.50	23.30	30.40	39.30

HALF-ROUND AND THREE-SQUARE

Length	4	5	6	7	8	9	10	12	14	16	18	20
Bastard	4.80	5.40	6.10	7.00	7.50	8.50	9.10	11.80	15.50	20.60	27.50	36.20
Second cut	5.60	6.10	6.70	7.70	8.30	9.40	10.10	13.00	17.00	22.50	29.90	39.40
Smooth	6.10	6.40	7.10	8.20	8.90	9.90	10.70	13.90	18.30	24.20	32.00	42.30

TAPER

Length	3	3½	4	4½	5	5½	6	7	8	9	10	12
Single cut	2.10	2.10	2.20	2.40	2.60	3.00	3.40	4.30	5.40	6.60	8.10	12.50
Double cut	2.50	2.50	2.90	3.10	3.50	4.00	4.70	5.60	6.70	8.10	9.70	14.70

SLIM TAPER

Length	3	3½	4	4½	5	5½	6	7	8	9	10	12
Single cut	2.10	2.10	2.20	2.30	2.50	2.90	3.10	3.80	4.50	5.40	6.40	9.50
Double cut	2.50	2.50	2.60	3.00	3.20	3.50	3.90	4.50	5.30	6.30	7.50	11.00

Mound Improved Scraping Tools

FOR SCRAPING VALVES, BABBITT METAL, JOURNALS, BEARINGS, ETC.



There are six Scrapers, as shown in the cut, in each set. They vary in size from 3 to 14 inches.

The scrapers are made of the best tool steel, carefully forged, tempered and polished, so that they are true in shape and possess the proper temper for effective work. In oak case, conveniently made, so that they can always be found together in the tool room.

No. 1—Set of 6 Scraping Tools, in oak case..... 2.50

No. 2—Set of 6 Mound "special" Hollow Ground Scraping Tools, in oak case..... 3.50



Emery Wheel Dressers

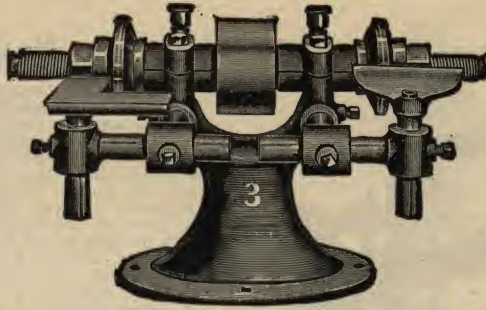
Dresser with two sets of cutters, each..... 2.00
Extra cutters, per set..... .40

Emery Wheels

Diam. in In.	Thickness of Wheels in Inches										Rev's per Min.	
	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	2	2 $\frac{1}{4}$	2 $\frac{1}{2}$	3	Min'm	Max'm
1	.25	.30	.30	.35	.35	.40	.40	.45	.50	.55	13,000	18,000
1 $\frac{1}{2}$	.30	.35	.40	.45	.45	.50	.50	.55	.60	.65	10,500	14,000
2	.35	.45	.50	.55	.55	.60	.60	.65	.70	.75	7,900	11,000
2 $\frac{1}{2}$	.40	.55	.65	.70	.75	.80	.85	.95	1.05	1.15	6,330	8,800
3	.50	.65	.80	.90	.95	1.05	1.10	1.25	1.40	1.55	5,275	7,400
3 $\frac{1}{2}$	.60	.80	.95	1.05	1.15	1.25	1.35	1.55	1.75	1.95	4,500	6,300
4	.75	.95	1.10	1.25	1.35	1.50	1.60	1.85	2.10	2.35	3,950	5,500
4 $\frac{1}{2}$	.90	1.10	1.25	1.40	1.55	1.70	1.85	2.15	2.45	2.75	3,500	4,900
5	1.00	1.20	1.40	1.60	1.80	2.00	2.20	2.60	3.00	3.40	3,160	4,400
6	1.40	1.60	1.75	2.10	2.40	2.75	3.05	3.70	4.35	5.00	2,640	3,700
7	1.85	2.00	2.15	2.60	3.00	3.45	3.85	4.70	5.55	6.40	2,260	3,160
8	2.10	2.35	2.60	3.10	3.60	4.10	4.60	5.60	6.60	7.60	1,980	2,770
9	2.60	2.80	3.10	3.70	4.25	4.85	5.40	6.55	7.70	8.85	1,760	2,460
10	3.00	3.35	3.65	4.35	5.00	5.70	6.35	7.70	9.05	10.40	1,580	2,210
12	3.60	3.80	4.00	5.00	6.00	6.70	7.40	9.00	10.70	12.75	1,320	1,850
14	4.05	5.15	6.25	7.35	8.45	9.55	10.65	12.85	15.05	17.25	1,130	1,580
16					10.85	12.30	13.70	16.55	19.40	22.25	990	1,380
18					13.25	15.15	17.00	20.75	24.50	28.25	880	1,230
20							20.25	24.75	29.25	33.75	790	1,100
22							25.00	31.00	37.00	43.00	720	1,000
24							29.00	36.00	43.00	50.00	660	920
26								43.00	51.00	59.00	600	850
30									61.00	72.00	500	735

Diam. in In.	Thickness of Wheels in Inches								Rev's per Min.	
	2	2 $\frac{1}{4}$	2 $\frac{1}{2}$	3	3 $\frac{1}{4}$	3 $\frac{1}{2}$	4		Min'm	Max'm
1	.60	.65	.70	.75	.80	.85	.90	1.00	13,000	18,000
1 $\frac{1}{2}$	.70	.75	.80	.85	.90	.95	1.00	1.10	10,500	14,000
2	.80	.85	.90	.95	1.00	1.05	1.10	1.20	7,900	11,000
2 $\frac{1}{2}$	1.25	1.35	1.45	1.55	1.65	1.75	1.85	2.05	6,330	8,800
3	1.70	1.85	2.00	2.15	2.30	2.45	2.60	2.90	5,275	7,400
3 $\frac{1}{2}$	2.15	2.35	2.55	2.75	2.95	3.15	3.35	3.75	4,500	6,300
4	2.60	2.85	3.10	3.35	3.60	3.85	4.10	4.60	3,950	5,500
4 $\frac{1}{2}$	3.05	3.35	3.65	3.95	4.25	4.55	4.85	5.45	3,500	4,900
5	3.80	4.20	4.60	5.00	5.40	5.80	6.20	7.00	3,160	4,400
6	5.65	6.30	6.95	7.60	8.25	8.90	9.55	10.85	2,640	3,700
7	7.25	8.10	8.95	9.80	10.65	11.50	12.35	14.05	2,260	3,160
8	8.60	9.60	10.60	11.60	12.60	13.60	14.60	16.60	1,980	2,770
9	10.00	11.15	12.30	13.45	14.60	15.75	16.90	19.20	1,760	2,460
10	11.75	13.10	14.45	15.80	17.15	18.50	19.85	22.55	1,580	2,210
12	14.00	15.70	17.40	19.00	20.75	22.50	24.25	27.50	1,320	1,850
14	19.45	21.65	23.85	26.05	28.25	30.45	32.65	37.05	1,130	1,580
16	25.00	27.95	30.80	33.65	36.50	39.35	42.20	47.90	990	1,380
18	32.00	35.75	39.50	43.25	47.00	50.75	54.50	62.00	880	1,230
20	38.25	42.75	47.25	51.75	56.25	60.75	65.25	74.25	790	1,100
22	49.00	55.00	61.00	67.00	73.00	79.00	85.00	97.00	720	1,000
24	57.00	64.00	71.00	78.00	85.00	92.00	99.00	113.00	660	920
26	67.00	75.00	83.00	91.00	99.00	107.00	115.00	131.00	600	850
30	83.00	94.00	105.00	116.00	127.00	138.00	149.00	171.00	500	735

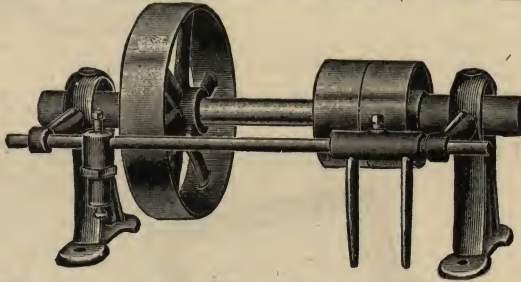
When ordering emery wheels be sure to give the bore wanted, and state for what purpose the wheels will be used. If wanted for wet grinding, so state on order.



No. 3

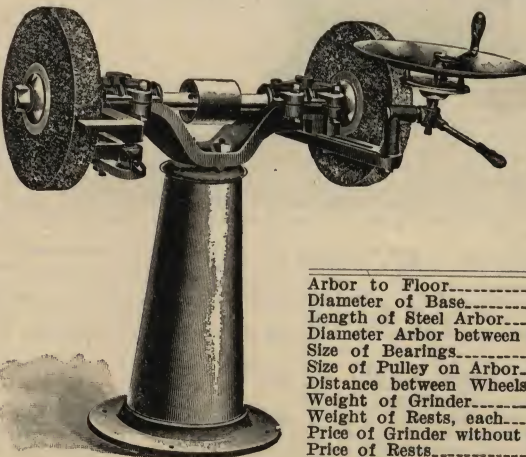
Bench Grinders

Number	1	2	3	4
Price	5.00	10.00	15.00	20.00
Will run two Wheels	6x1"	10x1½"	12x2"	16x2"
Size of Arbor between Flanges	5"	8"	1"	1½"
Size of Pulley	2"x1½"	2½"x2"	3½"x3"	4½"x4"
Distance between Wheels	6"	7½"	10"	15½"
Weight	8½ lbs.	17 lbs.	35 lbs.	75 lbs.



Countershafts For Bench Grinders

Number	1	2	3	4	7
Price	5.25	8.00	9.50	10.50	14.75
Tight and loose Pulley	3½"x1½"	5"x2"	5"x3"	6"x3½"	6"x4"
Driving Pulley	7½"x1½"	8½"x2"	10"x3½"	12"x4"	13"x4"
Drop of Hangers	5"	6½"	6"	8"	9"
Size of Shaft	17"x¾"	21"x1"	24"x1"	26"x1½"	30"x1½"
Weight	25 lbs.	35 lbs.	45 lbs.	60 lbs.	100 lbs.



No. 5

Floor Grinder No. 7

This Machine is offered to meet the demand for a heavy and durable Emery Grinder for the use of blacksmiths, machine shops, foundries, etc.

Especial attention is called to the extra long bearings, which prevent springing of arbors and insure steady and true running.

Bearings are adjustable, are bab-bit and provided with means for oiling.

Arbor to Floor	31
Diameter of Base	18
Length of Steel Arbor	40
Diameter Arbor between Collars	1½
Size of Bearings	8x1½
Size of Pulley on Arbor	6x5
Distance between Wheels	30½
Weight of Grinder	230
Weight of Rests, each	20
Price of Grinder without Rests	32.00
Price of Rests	4.25
Disc Grinding Attachment	8.25

Marvel Draw Cut Hack Saw No. 1



Saws Fast and Straight. Saves Saw Blades. Is exceptionally well made, and includes the following valuable improvements.

A Draw Cut. An eccentric on inner portion of crank, fitted to an arm that presses against the coiled steel spring, through which extends a steel rod, hooked firmly to rear portion of saw frame bearing, the tension pressing the saw down on material on the Draw Cut. On return or push motion the tension releases. The tension on spring is regulated by hand nut at end of spring.

A Quick Action Vise that saves time.

A Device that raises or lowers saw and holds it at any desired angle, allowing free use of both hands in measuring material.

Saws close to vise.

An extension to table so material rests on both sides of saw.

The wear can be taken up to any extent in the two saw bearings, which have also receptacles for oiled waste.

The drive shaft has bronze bearing.

Starter and Automatic Stop are at front of machine.

Capacity—4x4 in. Length of Blade, 12 inches.

Revolutions—60 to 90 per minute.

Weight—110 pounds. Price 16.75.

Marvel Draw Cut Hack Saw No. 2

WITH SWIVEL VISE THAT SWIVELS BOTH WAYS



Saws fast and straight. Saves blades.

Heavy and exceptionally rigid in construction.

Pressure on saw blade is actuated by an eccentric in connection with the compression spring, alternately pressing on the Draw Stroke and relieving on the return stroke. The tension on spring is regulated by hand nut at end of spring.

Feed lever at top carries tension thumb screw, and should be left engaged when sawing medium or light material. The same lever raises or lowers saw and holds it in any position, a great convenience in measuring.

The quick action, Heavy Vise Swivels Both Ways so that material can be inserted to cut on an angle either way.

The wear can be taken up to any extent in the two saw bearings which have also receptacles for oiled waste.

The drive shaft has bronze bearing.

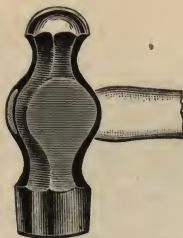
Starter and automatic stop are at front of machine.

Has adjustable stroke. Longest 6¾ inches, shortest 4 inches.

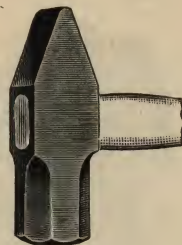
Capacity, 6x6 inches on long stroke and 8x8 inches on short stroke.

Takes blades from 12 in. to 17 in. Revolutions, 50 to 70 per minute. Weight, 260 lbs. Price, 35.00.

NOTE—The entire vise can be instantly removed (leaving a T-slotted table for holding irregular shapes) and makes an excellent tool for clamping work on drill press, etc.



Machinists'



Engineers'

Machinists Pein Hammers
OCTAGON PATTERN

Number	-----	000	00	0	1	2	3	4	5	6	7	8
Weight	-----each	8 oz.	12 oz.	1 lb.	1½ lb.	1¾ lb.	1¾ lb.	2 lb.	2½ lb.	2¾ lb.	2¾ lb.	3 lb.
Price	-----per dozen	12.00	12.00	12.50	13.50	14.50	15.50	16.50	17.50	19.00	20.50	22.00

Engineers' Hammers

Number	-----	0	1	2	3	4	5	6
Weight	-----each	1 lb. 2 oz.	1 lb. 10 oz.	2 lb.	2½ lb.	3 lb.	3½ lb.	4½ lb.
Price	-----per dozen	12.00	13.00	14.00	15.00	16.00	17.00	19.00



Hack Saw Frames

Made from steel, heavily nickel plated, strong and rigid. Finely finished hardwood handle. Takes blades 8 to 12 inches inclusive. Can be adjusted to cut at four different angles.

Price -----per dozen 12.00

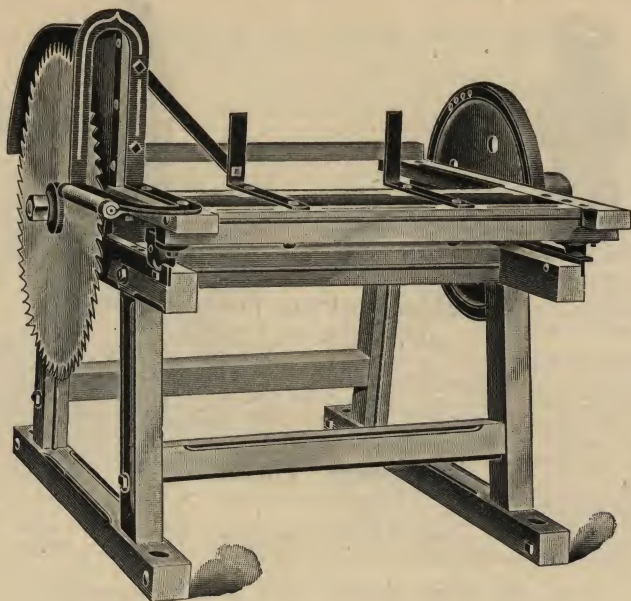


Hack Saw Blades

Length	-----	6"	7"	8"	9"	10"	11"	12"
Price	-----per gross	7.00	7.50	8.00	9.00	10.00	11.00	12.00

Power Hack Saw Blades

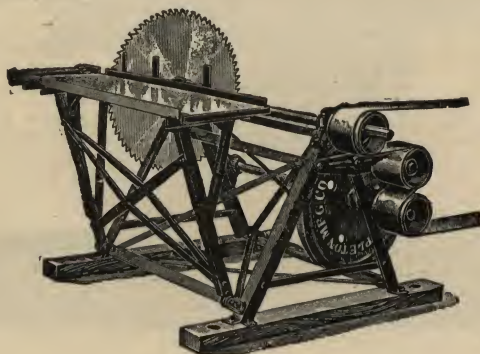
Length	-----	12"	14"	16"	17"	18"	19"	20"	21"
No. 18 Gauge, ¾" wide	-----per gross	18.00	21.00	25.20	27.60	33.60	37.80	39.60	42.00
No. 18 Gauge, 1" wide	-----per gross	-----	-----	33.60	36.00	37.80	39.60	42.00	44.20
No. 16 Gauge, 1" wide	-----per gross	-----	-----	-----	39.00	40.80	42.60	45.20	46.80



Sliding Table Wood Saw

Size of pulley.....	5"x6" or 6"x6".
Speed	1000 to 1500 revolutions per minute.
Weight	370 lbs., without saw.
List price	36.00, without saw.

A sliding table saw with frame of ample size and weight to stand hard usage. The table has anti-friction iron rollers, and slides easily over a metal track bolted to frame. One end of table is provided with a roller to assist in handling poles.

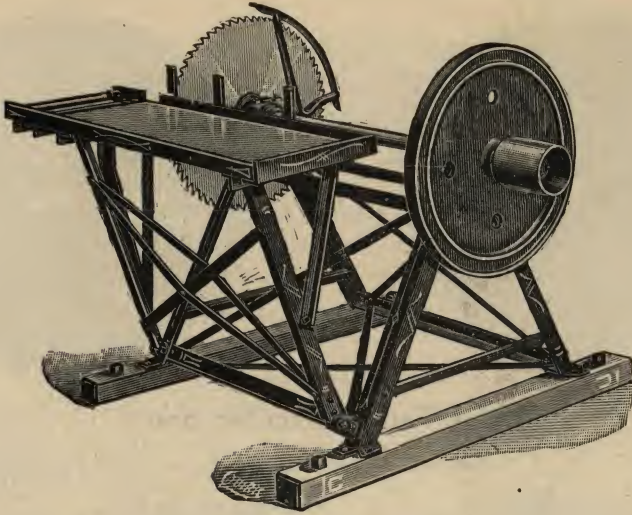


New Style Pole Saw

Size of pulley.....	6"x6".
Speed	1200 to 2000 revolutions per minute.
Weight	Steel Frame, 324 lbs., without saw.
	Wood Frame, 403 lbs., without saw.
List price	40.00, without saw.

With this style of saw frame long poles can be cut into any desired lengths, because the balance wheel is under the frame, where it cannot interfere with the longest pole. It has tilting table with roller.

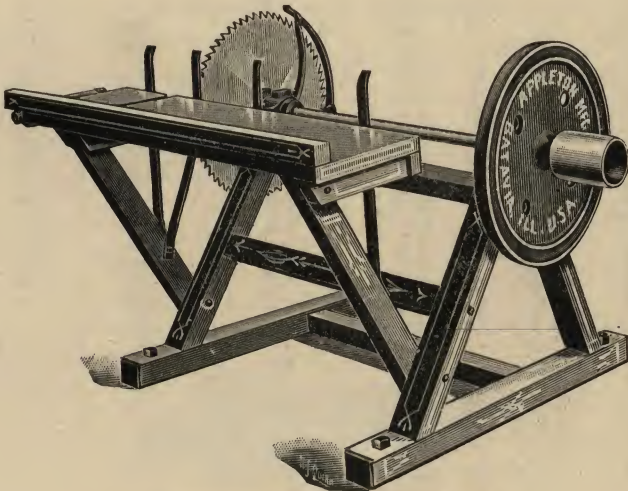
We can furnish with either steel frame or wood frame, the construction of which is identical with the Steel Frame Wood Saw and the Common Sense Wood Saw.



Steel Frame Wood Saw

Size of pulley.....	5"x6" or 6"x6".
Speed	1000 to 1500 revolutions per minute.
Weight	276 lbs., without saw.
List price	30.00, without saw.

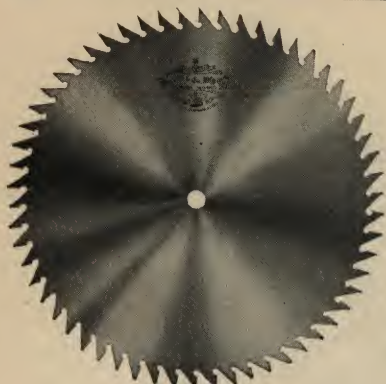
This saw frame is provided with a tilting table with roller at one end for convenience in handling long poles. The frame is of heavy angle steel strongly bolted and rigidly braced. It is the strongest and most rigid steel saw frame of its style on the market.



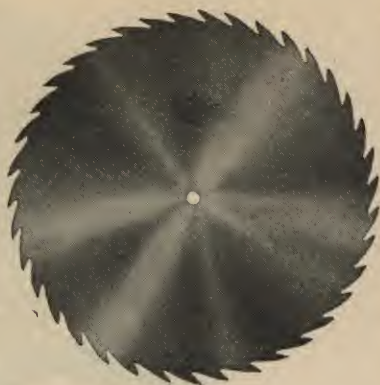
Common Sense Wood Saw

Size of pulley.....	5"x6" or 6"x6".
Speed	1000 to 1500 revolutions per minute.
Weight	298 lbs., without saw.
List price	30.00, without saw.

This is for those who prefer a wooden frame saw. It is built of selected well seasoned hard wood, mortised and strongly bolted together, and rigidly braced. It has the same conveniences and advantages as the Steel Frame Wood Saw.



Cut-Off



Rip

Solid Tooth Circular Saws

Diameter, Inches.	Thickness, Gauge.	Size of Hole, Inches.	Price, Each.	Extra for Each Gauge Heavier.	Beveling New Saws, Per Gauge.	Net Prices. Extra for Setting and Sharpening if	
						Rip.	Cross-Cut.
1	24		1.00	.01	.06	.03	.04
1½	24		1.00	.01	.07	.03	.05
2	23		1.00	.01½	.08	.04	.05
2½	22		1.00	.02	.09	.04	.06
3	21		1.00	.02½	.10	.05	.06
3½	20		1.00	.03	.12	.05	.07
4	19		1.20	.03	.14	.06	.07
5	19		1.50	.04	.16	.06	.08
6	18		1.80	.05	.18	.07	.10
7	18		2.10	.06	.20	.08	.11
8	18		2.40	.08	.22	.10	.13
9	17		2.80	.10	.25	.11	.14
10	16	1	3.30	.12	.28	.12	.16
11	16	1	3.90	.16	.30	.13	.18
12	15	1	4.40	.20	.35	.15	.20
14	14	1½	5.30	.25	.40	.18	.23
16	14	1½	6.50	.30	.50	.20	.25
18	13	1½	8.00	.40	.60	.23	.28
20	13	1½	9.50	.50	.70	.25	.32
22	12	1½	11.50	.60	.80	.28	.35
24	11	1½	13.50	.70	.90	.31	.40
26	11	1½	16.00	.85	1.05	.35	.45
28	10	1½	18.50	1.00	1.20	.38	.50
30	10	1½	21.00	1.15	1.30	.42	.55
32	10	1½	24.00	1.30	1.40	.45	.60
34	9	1½	27.00	1.50	1.55	.50	.65
36	9	1½	31.00	1.80	1.70	.55	.70
38	9	1½	35.00	2.00	1.85	.60	.75
40	9	2	41.00	2.30	2.00	.65	.80
42	8	2	47.00	2.60	2.20	-----	.85
44	8	2	55.00	3.00	2.40	-----	.90
46	8	2	65.00	3.50	2.60	-----	1.00
48	8	2	75.00	4.00	2.80	-----	1.10
50	7	2	85.00	4.50	3.00	-----	1.20
52	7	2	95.00	5.00	3.25	-----	1.30
54	7	2	105.00	6.00	3.50	-----	1.40
56	7	2	120.00	7.00	3.75	-----	1.50
58	7	2	135.00	8.00	4.05	-----	1.60
60	6	2	150.00	9.00	4.35	-----	1.70
62	6	2	170.00	10.00	4.65	-----	1.80
64	6	2	190.00	12.00	5.00	-----	1.90
66	6	2	210.00	15.00	5.35	-----	2.00
68	5	2	235.00	18.00	5.75	-----	2.10
70	5	2	265.00	21.00	6.15	-----	2.20
72	5	2	300.00	24.00	6.55	-----	2.30
74	5	2	340.00	27.00	7.00	-----	2.40
76	5	2	390.00	30.00	7.50	-----	2.50

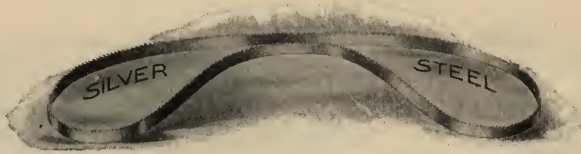
No extra charge for Saws one gauge thicker than list.

No extra charge for Saws one or two gauges thinner than list; when more than two gauges thinner, add 5 per cent to list for each gauge.

Circular Saws 48 inches and larger, thinner than 10 gauge are not warranted.

Circular Saws 42 inches or less in diameter beveled one gauge without extra charge; 44 inches or larger, beveled two gauges without extra charge.

In ordering state whether rip or cut-off saw is wanted, and give size of hole in same.



Narrow Band Saws

FOR RE-SAWING AND SCROLL-SAWING. NOT JOINED, FILED OR SET.

Width	inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{7}{8}$
Price	per foot	.07	.08	.09	.10	.11	.13	.15	.17	.19	.21	.23	.26	.29	.32

Filing and setting, 4 cents per foot extra.

BRAZING

$\frac{1}{8}$ to $\frac{1}{4}$ inch	.40	1 to $1\frac{1}{4}$ inch	.60
$\frac{3}{8}$ to $\frac{1}{2}$ inch	.50	$1\frac{1}{4}$ to $1\frac{3}{4}$ inch	.80

In ordering, state whether saws are wanted brazed, filed and set.



Circular Saw Mandrels

No.	Extreme Length, Inches	Diam. of Arbor, Inches	Diam. of Pulley, Inches	Face of Pulley, Inches	Diam. of Collars, Inches	Size Hole in Saw, Inches	Size of Saw, Inches	Price, Each
1	16 $\frac{1}{2}$	1 $\frac{1}{8}$	3	3	3	1	6 to 12	8.00
2	19	1 $\frac{1}{8}$	3	3 $\frac{1}{2}$	3	1	14 to 18	9.00
3	21 $\frac{1}{2}$	1 $\frac{1}{8}$	3	4	3 $\frac{1}{2}$	1 $\frac{1}{2}$	20 to 24	9.50
4	24	1 $\frac{1}{8}$	3 $\frac{1}{2}$	4 $\frac{1}{2}$	3 $\frac{1}{2}$	1 $\frac{1}{2}$	26 to 28	11.25
5	26	1 $\frac{1}{8}$	4	5	4	1 $\frac{1}{2}$	30 to 32	12.50
6	28	1 $\frac{1}{8}$	4 $\frac{1}{2}$	5 $\frac{1}{2}$	4	1 $\frac{1}{2}$	34 to 36	14.00
7	30 $\frac{1}{2}$	1 $\frac{1}{8}$	5	6	4 $\frac{1}{2}$	1 $\frac{3}{4}$	36	15.00
8	33 $\frac{1}{2}$	1 $\frac{1}{8}$	5	6	4 $\frac{1}{2}$	1 $\frac{3}{4}$	36	18.00
9	37	1 $\frac{1}{8}$	6	7	4 $\frac{1}{2}$	1 $\frac{3}{4}$	38	23.50
10	41	1 $\frac{1}{8}$	7	8	5	1 $\frac{3}{4}$	40	28.00
11	44 $\frac{1}{2}$	1 $\frac{1}{8}$	8	10	5	1 $\frac{3}{4}$	42	38.50
12	48	1 $\frac{1}{8}$	10	10	5	1 $\frac{3}{4}$	42	40.00
13	54	2 $\frac{1}{8}$	12	10	5	2	48	50.00

Mandrels of any length or diameter furnished to order.



Mixer Duplex Saw Swages

The spreading recess of this swage has a convex surface. This feature enables the swage to spread the teeth readily to the required width without materially reducing their length, thus adding to the life of the saw.

No. 3, Duplex Swage, largest size, for saws of from 5 to 10 gauge.....	7.00
No. 2, Duplex Swage, medium size, for saws of from 8 to 12 gauge.....	6.00
No. 1, Duplex Swage, for all thinner gauges.....	5.00
No. 0, Duplex Swage, for small thin saws.....	4.00



Champion Gummer



Reamer Gummer

Mixer Champion Saw Gummers

WITH AUTOMATIC SELF-FEED

- The No. 1 Gummer has double cranks, and will gum all kinds and sizes of saws. Price, including three Cutters (usual sizes $\frac{3}{8}$, $\frac{1}{2}$ and 1 inch), Grinder and Wrench----- 30.00
- The No. 2 Gummer has a single crank, and is especially adapted to cross-cut saws, small and medium circular saws, etc. Price, including three Cutters ($\frac{3}{8}$, $\frac{1}{2}$ and $\frac{3}{4}$ inch), Grinder and Wrench ----- 30.00

Peerless Reamer Saw Gummer

This is the latest and best in saw gummers. The feed is horizontal from the side, and it is the taper of the reamer that does the gumming. It has a shearing cut, and is absolutely automatic. The large end of reamer is squared off so as to finish the throat of the tooth square as it passes through. This gummer is quickly placed in position on the saw, and easily moved. No trouble to remove reamer from the arbor. One reamer will last a long time. Gummer weighs 12 pounds.

Price with Wrench and two Reamers, any size----- 20.00



Champion Cutter



Reamer Cutter

Gummer Cutters

Size	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	2
For Champion Gummer	.50	.50	.50	.60	.70	.80
For Reamer Gummer	1.00	1.25	1.50	1.75	2.00	2.25

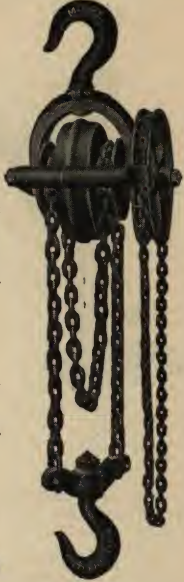
When ordering cutters for Champion Gummer, always give diameter of hole wanted in same.



Weston Direct Differential
Pulley Blocks

No.	Cpety, tons	Price	Will Lift, feet	Regu- lar Chain	Extra Chain per foot	Weight	Shortest Distance Between Hooks
000	$\frac{1}{2}$	18.00	6	22'	.70	20	17"
00	$\frac{3}{4}$	21.00	7	26'	.70	31	21"
11	1	28.00	8	30'	.75	53	26"
11 $\frac{1}{2}$	1 $\frac{1}{2}$	36.00	8 $\frac{1}{2}$	33'	.80	90	32"
12	2	45.00	9	36'	.85	128	39"
13	3	60.00	10	38'	1.00	167	44"

Allow four feet of chain for each additional foot of lift.
Always specify "DIRECT" blocks when ordering this style.
Order by number.



Moore Anti-Friction Chain Hoists

Weston

Moore

No.	Cpety, tons	Price	Extra Main Chain per foot	Extra Hand Chain per foot	Extra per foot of Lift	Height of Lift*	Weight	Shortest Distance Between Hooks	Chain Overhauled to raise one foot
0	$\frac{1}{2}$	25.00	.40	.25	1.30	7'	39	16"	38'
1	1	30.00	.44	.25	1.38	8'	73	20"	47'
1 $\frac{1}{2}$	1 $\frac{1}{2}$	40.00	.48	.25	1.46	8 $\frac{1}{2}$ '	90	21"	59'
2	2	50.00	.52	.25	1.54	9'	128	23"	65'
3	3	70.00	.60	.25	1.70	10'	195	29"	108'
4	4	95.00	.70	.25	1.90	11'	250	32"	120'
5	5	125.00	.80	.25	2.10	12'	353	36"	166'
6	6	150.00	.80	.25	2.10	12'	400	37"	168'
8	8	200.00	1.25	.25	3.00	12'	580	41"	240'
10	10	250.00	1.25	.25	3.50	12'	625	41"	240'
15	15	350.00	1.50	.25	4.00	12'	780	45"	366'

*Figures in seventh column denote approximate height which blocks, with regular lengths of chain, will lift from level on which operator stands.
For every additional foot of lift desired, two feet extra of both main and hand chain will be necessary.
Order by number.

Cyclone High Speed Chain Hoists



No.	Cpety, tons	Price	Height of Lift*	Extra Chain per foot of Lift	Weight	Chain Pull to Lift Full Load, pounds	Feet of Chain Handled to Lift Load one foot
30	$\frac{1}{2}$	35.00	8'	.90	62	63	19
31	1	45.00	8'	.95	85	85	29 $\frac{1}{2}$
31 $\frac{1}{2}$	1 $\frac{1}{2}$	60.00	8'	1.00	107	109	35
32	2	70.00	9'	1.05	133	126	39 $\frac{1}{2}$
33	3	90.00	10'	1.50	195	115	69
34	4	110.00	10'	1.60	250	115	91
35	5	140.00	12'	2.10	386	104	123
36	6	165.00	12'	2.10	402	109	140
38	8	200.00	12'	2.70	464	130	159
310	10	240.00	12'	3.25	610	129	191
312	12	300.00	12'	3.30	647	150	195
316	16	360.00	12'	3.80	872	149	285
320	20	425.00	12'	6.50	1360	160	336
330	30	625.00	12'	9.00	1780	160	504

*Figures in fourth column denote approximate height which blocks, with regular lengths of chain, will lift from level on which operator stands.
For every additional foot of lift desired, two feet extra of both main and hand chain will be necessary.
Order by number.



No. 1 Lifting



No. 2 Lowering



Automobile



Locomotive

Barrett Lifting Jacks

DOUBLE ACTING TRIP JACKS

The load can be dropped instantly by tripping the jack. No. 21 has foot lift or claw at side instead of front. No. 1 is most popular.

No.	Price	Weight	Capacity, tons	Height Bar Down	Raise of Bar	Size of Bar
1	18.00	65	10	24"	13½"	1½x1½
6	32.00	110	15	31"	19"	1½x1½
12	17.00	57	10	17½"	8"	1½x1½
21	18.00	65	10	24"	11"	1½x1½

Barrett Lowering Jacks

DOUBLE ACTING

For lifting quickly and lowering gradually. As there is no trip, load cannot be dropped. No. 32 has foot lift on side. No. 2 is most popular.

No.	Price	Weight	Capacity, tons	Height Bar Down	Raise of Bar	Size of Bar
2	25.00	73	10	21"	10"	1½x1½
22	25.00	72	10	18½"	8"	1½x1½
32	25.00	75	10	20½"	10"	1½x1½
3	30.00	95	12	26½"	15"	1½x1½
4	35.00	106	15	22"	10"	2 x2
5	40.00	125	15	28"	15"	2 x2
50	16.00	35	5	16"	8"	1½x1½
51	18.00	42	5	21"	13"	1½x1½

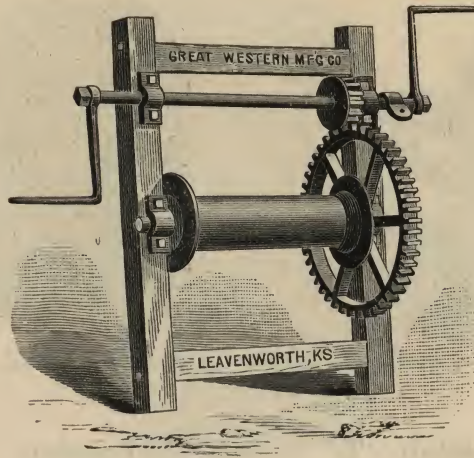
Barrett Automobile Jacks

SINGLE ACTING

No.	Price	Weight	Capacity tons	Height Bar Down	Raise of Bar	No.	Price	Weight	Capacity tons	Height Bar Down	Raise of Bar
00	3.50	8½	1	12"	6"	07	3.50	7	1	8"	5"
08	3.50	9½	1	11"	6"	44	2.50	5	¾	10"	6"
06	3.50	8½	1	10"	5"	24	6.00	14	2½	11½"	5½"

Locomotive Jack Screws

Diameter of Screw	Height of Stand	Price	Diameter of Screw	Height of Stand	Price	Diameter of Screw	Height of Stand	Price	Diameter of Screw	Height of Stand	Price
1½	8	3.40	1½	12	6.25	2½	6	7.00	2½	14	12.00
1½	10	3.80	1½	14	6.75	2½	8	7.50	2½	16	13.25
1½	12	4.20	1½	16	7.50	2½	10	8.25	2½	18	14.50
1½	14	4.60	1½	18	8.50	2½	12	9.00	2½	20	15.75
1½	4	3.25	2	5	5.00	2½	14	10.00	2½	22	17.00
1½	5	3.50	2	6	5.25	2½	16	11.00	2½	24	18.25
1½	6	3.75	2	8	6.00	2½	18	12.00	2½	28	22.00
1½	8	4.25	2	10	6.75	2½	20	13.25	2½	32	26.00
1½	10	4.75	2	12	7.50	2½	22	14.50	3	14	19.50
1½	12	5.25	2	14	8.25	2½	24	15.75	3	16	20.75
1½	14	6.00	2	16	9.25	2½	6	7.75	3	18	22.00
1½	16	6.75	2	18	10.25	2½	6½	8.00	3	20	23.25
1½	6	4.50	2	20	11.50	2½	8	8.75	3	22	24.50
1½	8	5.00	2	22	12.50	2½	10	9.75	3	24	25.75
1½	10	5.75	2	24	13.50	2½	12	10.75	3	30	30.00

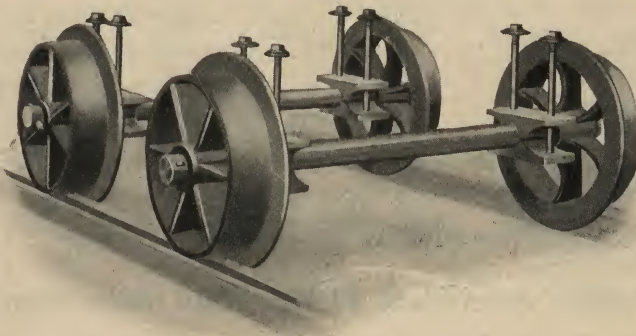


Hoisting Crabs

Price, complete, as shown in cut, heavy machines 45.00
 Price, complete, as shown in cut, light machines 30.00

These machines are also used as hand power log turners.

Double geared machines and special designs furnished to order. Prices and cuts upon application.



Lumber Truck Wheels

Diameter of wheel	10"	12"	14"	16"	18"	20"	24"
Diameter of axle	1 $\frac{1}{8}$ "	1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "	1 $\frac{7}{8}$ "	1 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "
Price	27.50	30.00	35.00	41.00	46.50	53.00	61.00

Prices include 2 axles, 4 wheels, 4 boxes, and 8 bolts for 10" timber, for track not exceeding three foot gauge. In ordering, give distance between tracks.

Car Wheels

We have a number of patterns for wheels suitable for mining cars, industrial railways and factory use. Let us have your specifications.



Buffalo "B" Volume Exhauster



Steel Plate Planing Mill Exhauster

Buffalo "B" Volume Exhausters Buffalo "B" Volume Blowers

Exhausters are used for removing hot air and moisture from roller mills, meal dryers, etc. They are also used for removing smoke and gases from forges, dust from emery wheels and refuse from buffing wheels.

Blowers are used in forced draft service, supplying blast to forges, etc.

In ordering, always mention whether right or left-hand fan is desired, and what style of discharge—bottom horizontal, top horizontal, up or down blast. A right-hand machine has pulley on the right-hand side as you stand facing the outlet; a left-hand has pulley on the left-hand side, standing in the same position.

No.	Price	Weight	Height Inches	Diameter of Outlet	Diameter of Inlet	Diameter of Pulley	Face of Pulley
000B	15.00	—	14 $\frac{1}{2}$	5 $\frac{1}{2}$	5 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$
1B	20.00	60	15 $\frac{1}{2}$	4 $\frac{1}{2}$	5 $\frac{1}{2}$	3	2 $\frac{1}{2}$
2B	25.00	100	20 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$	3 $\frac{1}{2}$	2 $\frac{1}{2}$
3B	33.00	170	24 $\frac{1}{2}$	7 $\frac{1}{2}$	7 $\frac{1}{2}$	4	3
4B	44.00	200	27 $\frac{1}{2}$	9	9	5	3 $\frac{1}{2}$
5B	55.00	275	31 $\frac{1}{2}$	10 $\frac{1}{2}$	10 $\frac{1}{2}$	5 $\frac{1}{2}$	4 $\frac{1}{2}$
6B	70.00	380	37 $\frac{1}{2}$	11 $\frac{1}{2}$	12 $\frac{1}{2}$	6 $\frac{1}{2}$	5 $\frac{1}{2}$
7B	90.00	575	42 $\frac{1}{2}$	14	14	7 $\frac{1}{2}$	6 $\frac{1}{2}$
8B	150.00	725	47 $\frac{1}{2}$	16 $\frac{1}{2}$	16	8 $\frac{1}{2}$	7 $\frac{1}{2}$
9B	200.00	1100	55 $\frac{1}{2}$	17 $\frac{1}{2}$	17 $\frac{1}{2}$	9 $\frac{1}{2}$	8 $\frac{1}{2}$
10B	250.00	1600	68 $\frac{1}{2}$	21	21	12	9 $\frac{1}{2}$
11B	350.00	3200	78 $\frac{1}{2}$	24 $\frac{1}{2}$	24 $\frac{1}{2}$	14	12

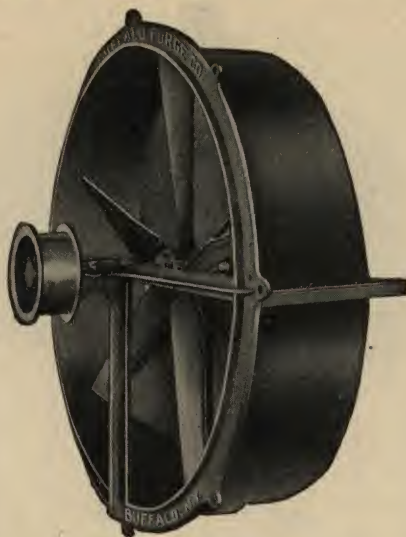
Buffalo Steel-Plate Planing Mill Exhausters

These Exhaust Fans are adapted for removing shavings and other refuse from wood working machines in planing mills, and are also extensively used in connection with cotton separating machinery.

Right hand bottom horizontal discharge exhauster is shown in cut. We can furnish them with left hand bottom horizontal discharge, right or left hand top horizontal discharge, up or down blast. When ordering, specify the hand and discharge wanted.

Size	Price of Single Fans	Weight	Width of Fan	Outside Diameter of Inlet	Outside Size of Outlet	Single Fan Pulleys	
						Diameter	Face
30"	55.00	225	33 $\frac{1}{2}$	11 $\frac{1}{2}$	9 $\frac{1}{2}$ x 9 $\frac{1}{2}$	6	4 $\frac{1}{2}$
35"	70.00	320	36 $\frac{1}{2}$	13 $\frac{1}{2}$	11 $\frac{1}{2}$ x 11 $\frac{1}{2}$	7	5 $\frac{1}{2}$
40"	90.00	450	41 $\frac{1}{2}$	15 $\frac{1}{2}$	13 $\frac{1}{2}$ x 13 $\frac{1}{2}$	8	6
45"	115.00	590	45 $\frac{1}{2}$	18 $\frac{1}{2}$	15 x 15	9	6 $\frac{1}{2}$
50"	150.00	760	48 $\frac{1}{2}$	19	16 $\frac{1}{2}$ x 16 $\frac{1}{2}$	10	7
55"	185.00	850	53 $\frac{1}{2}$	20 $\frac{1}{2}$	18 $\frac{1}{2}$ x 18 $\frac{1}{2}$	11	8
60"	200.00	1050	57 $\frac{1}{2}$	22 $\frac{1}{2}$	19 $\frac{1}{2}$ x 19 $\frac{1}{2}$	11 $\frac{1}{2}$	9
70"	250.00	1300	60 $\frac{1}{2}$	24 $\frac{1}{2}$	22 $\frac{1}{2}$ x 22 $\frac{1}{2}$	12	10
80"	300.00	1700	64	30 $\frac{1}{2}$	26 x 26	14	10 $\frac{1}{2}$

Sizes are designated by height of housing.



Buffalo Exhaust Disk Wheels

For removing smoke, gas, steam, heat, dust, foul air, etc., from factories and other buildings.

Size	18	24	30	36	42	48	54	60	72	84
Price	40.00	50.00	65.00	85.00	110.00	125.00	175.00	250.00	300.00	350.00
Weight	75	100	170	230	325	445	560	630	820	990
Size pulley	2x4	2x4	2½x6	3x7	3½x8	4x9	4x9	5x10	5½x12	6x14
Speed	1000	800	650	525	450	400	350	320	265	230
Horse power	0.10	0.25	0.50	0.63	0.90	1.15	1.50	1.90	2.75	3.60
Cu. ft. air per min.	2200	4000	6200	8800	12000	18000	21000	25000	36000	50000

Buffalo Experimental Blowers Buffalo Experimental Exhausters

These are intended for blowing fires in small boilers, for experimenting, and various purposes where a small quantity of air, at an average pressure, is desired. The No. 0 is sufficient to blow one forge fire; No. ½ is sufficient for three forge fires of average size.

No.	Price		Weight	Outside Diameter Outlet	Height	Pulley	
	Blower	Exhauster				Diameter	Face
00	8.00	10.00	20	2½	11"	1½	1½
0	10.00	12.00	30	3	15"	1½	1½
½	14.00	16.00	45	4½	20"	1½	2



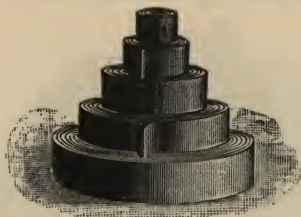
Slide Pattern



Lever Pattern

Blast Gates

Size	2	2½	3	4	5	6	8	10	12	14	16	18
Price, either style	1.00	1.25	1.50	2.00	2.25	2.50	3.50	5.00	6.50	8.00	12.00	16.00



Leather Belting

PRICE PER RUNNING FOOT

Width, Inches	Single	Double	Width, Inches	Single	Double
$\frac{1}{2}$	.12	.24	17	4.08	8.16
$\frac{3}{4}$	.15	.30	18	4.32	8.64
1	.18	.36	19	4.56	9.12
$1\frac{1}{8}$	.21	.42	20	4.80	9.60
$1\frac{1}{4}$	.24	.48	21	5.04	10.08
$1\frac{1}{2}$	.30	.60	22	5.28	10.56
$1\frac{3}{4}$	.36	.72	23	5.52	11.04
2	.42	.84	24	5.76	11.52
$2\frac{1}{8}$	.48	.96	25	6.00	12.00
$2\frac{1}{4}$	.54	1.08	26	6.24	12.48
$2\frac{3}{8}$	.60	1.20	27	6.48	12.96
$2\frac{1}{2}$	.66	1.32	28	6.72	13.44
3	.72	1.44	29	6.96	13.92
$3\frac{1}{8}$	.78	1.56	30	7.20	14.40
$3\frac{1}{4}$	.84	1.68	32	7.68	15.36
$3\frac{3}{8}$	.90	1.80	34	8.16	16.32
4	.96	1.92	36	8.64	17.28
$4\frac{1}{8}$	1.08	2.16	38	9.12	18.24
5	1.20	2.40	40	9.60	19.20
$5\frac{1}{8}$	1.32	2.64	42	10.08	20.16
6	1.44	2.88	44	10.56	21.12
$6\frac{1}{8}$	1.56	3.12	46	11.04	22.08
7	1.68	3.36	48	11.52	23.04
8	1.92	3.84	50	12.00	24.00
9	2.16	4.32	52	12.48	24.96
10	2.40	4.80	54	12.96	25.92
11	2.64	5.28	56	13.44	26.88
12	2.88	5.76	60	14.40	28.80
13	3.12	6.24	64	15.36	30.72
14	3.36	6.72	68	16.32	32.64
15	3.60	7.20	72	17.28	34.56
16	3.84	7.68			

Special Belting

If you need a belt for some special place where it is damp and wet or hot and dry, or have a drive that is continually bothering you, tell us your troubles in detail and let us smooth them out for you. We handle special belts to suit all conditions, and know we can help you.

Round Leather Belting

PRICE PER FOOT

Diameter	$\frac{1}{8}$	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{2}$
Solid	.05	.07	.10	.14	.18									
Twisted	.08	.12	.17	.22	.27									
Patent Solid						.36	.38	.48	.60	.80	.96			
							.38	.48	.60	.80	.96	1.10	1.15	1.40



Round Belt Couplings

Inch -----	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	
Per dozen -----	2.50	2.00	2.50	3.00	3.50	4.00	6.00	9.00	18.00

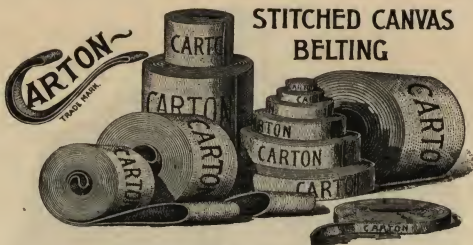


Rubber Belting

PRICE PER RUNNING FOOT

Width	2-ply	3-ply	4-ply	5-ply	6-ply	7-ply	8-ply
1	.09	.11	.13				
1½	.11	.13	.16				
1½	.13	.15	.19	.23			
1½	.15	.17	.22	.27			
2	.18	.20	.25	.31	.37		
2½	.22	.25	.31	.38	.46		
3	.26	.30	.37	.45	.55		
3½	.30	.35	.43	.53	.65		
4	.34	.40	.50	.61	.75	.86	
4½	.38	.45	.55	.69	.84	.96	
5	.42	.50	.61	.76	.91	1.06	
6	.50	.60	.72	.89	1.08	1.25	1.44
7	.59	.70	.84	1.04	1.25	1.46	1.68
8	.67	.80	.96	1.19	1.44	1.68	1.92
9	.76	.90	1.07	1.34	1.60	1.88	2.16
10	.84	1.00	1.20	1.49	1.77	2.09	2.40
11	.92	1.10	1.32	1.63	1.96	2.29	2.62
12	1.00	1.20	1.43	1.78	2.15	2.50	2.85
13	1.10	1.30	1.56	1.95	2.34	2.73	3.12
14	1.19	1.40	1.69	2.11	2.54	2.96	3.39
15	1.28	1.52	1.83	2.28	2.74	3.19	3.65
16	1.37	1.65	1.96	2.44	2.94	3.42	3.92
18	1.55	1.87	2.22	2.77	3.33	3.88	4.44
20	1.74	2.09	2.49	3.10	3.73	4.35	4.97
22	1.94	2.33	2.77	3.47	4.16	4.85	5.54
24	2.16	2.60	3.08	3.85	4.62	5.39	6.16
26	2.38	2.86	3.39	4.23	5.08	5.93	6.78
28	2.60	3.12	3.70	4.62	5.54	6.47	7.39
30	2.82	3.39	4.00	5.00	6.00	7.00	8.00
32	3.04	3.65	4.31	5.39	6.47	7.55	8.62
34	3.26	3.92	4.62	5.78	6.93	8.09	9.24
36	3.48	4.18	4.93	6.16	7.39	8.62	9.86
38	3.70	4.44	5.24	6.55	7.85	9.16	10.47
40	3.92	4.71	5.55	6.93	8.32	9.70	11.09
42	4.14	4.97	5.85	7.32	8.78	10.24	11.70
44	4.36	5.24	6.16	7.70	9.24	10.78	12.32
46	4.58	5.50	6.47	8.08	9.70	11.32	12.94
48	4.80	5.76	6.73	8.47	10.16	11.86	13.55
50	5.02	6.03	7.08	8.85	10.63	12.40	14.17
52	5.22	6.29	7.39	9.24	11.09	12.94	14.78
54	5.46	6.56	7.70	9.63	11.55	13.48	15.40
56	5.68	6.82	8.01	10.01	12.01	14.01	16.02
58	5.90	7.08	8.32	10.40	12.47	14.55	16.63
60	6.12	7.35	8.62	10.78	12.94	15.09	17.25

Endless Rubber Belts made to order, for which an extra charge of three feet will be made for the splice in all belts to and including 12" wide; belts more than 12" and including 20", four feet extra will be charged; from 20" and including 30", five feet extra. Subject to the regular discount.



Stitched Canvas Belting

PRICE PER RUNNING FOOT

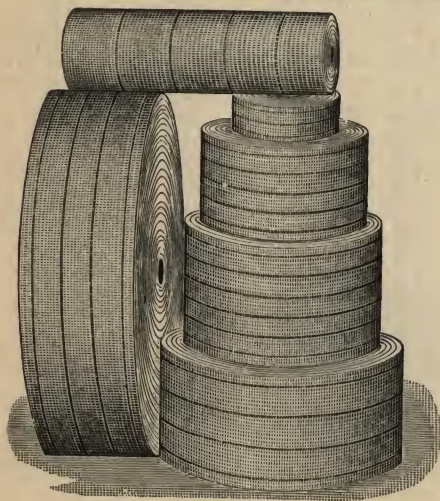
4-ply		5-ply		6-ply		8-ply		10-ply	
1½"	.15	2"	.25	3"	.45	4"	.80	12"	3.00
2"	.20	2½"	.31	3½"	.53	4½"	.90	13"	3.58
2½"	.25	3"	.38	4"	.60	5"	1.00	14"	3.85
3"	.30	3½"	.44	4½"	.68	6"	1.20	15"	4.13
3½"	.35	4"	.50	5"	.75	7"	1.40	16"	4.40
4"	.40	4½"	.56	6"	.90	8"	1.60	18"	4.95
4½"	.45	5"	.63	7"	1.05	9"	1.80	20"	5.50
5"	.50	6"	.75	8"	1.20	10"	2.00	22"	6.05
6"	.60	7"	.88	9"	1.35	11"	2.20	24"	6.60
7"	.70	8"	1.00	10"	1.50	12"	2.40	26"	7.80
8"	.80	9"	1.13	11"	1.65	13"	2.86	28"	8.40
9"	.90	10"	1.25	12"	1.80	14"	3.08	30"	9.00
10"	1.00	11"	1.38	13"	2.15	15"	3.30	32"	9.60
11"	1.10	12"	1.50	14"	2.31	16"	3.52	34"	10.20
12"	1.20	13"	1.79	15"	2.48	18"	3.96	36"	10.80
13"	1.43	14"	1.93	16"	2.64	20"	4.40	38"	12.85
14"	1.54	15"	2.06	18"	2.97	22"	4.84	40"	13.00
15"	1.65	16"	2.20	20"	3.30	24"	5.28	42"	13.65
16"	1.78	18"	2.48	22"	3.63	26"	6.24	44"	14.80
18"	1.98	20"	2.75	24"	3.96	28"	6.72	46"	14.95
20"	2.20	22"	3.03	26"	4.68	30"	7.20	48"	15.60
22"	2.42	24"	3.30	28"	5.04	32"	7.68		
24"	2.64	26"	3.90	30"	5.40	34"	8.16		
26"	3.12	28"	4.20	32"	5.76	36"	8.64		
28"	3.36	30"	4.50	34"	6.12	38"	9.88		
30"	3.60	32"	4.80	36"	6.48	40"	10.40		
32"	3.84	34"	5.10	38"	7.41	42"	10.92		

Stitched Canvas Endless Thresher Belts

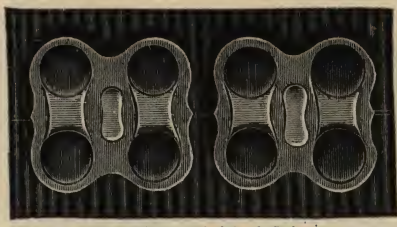
All lengths, widths and plies generally used with threshing outfits. Ask for special net prices.

Solid Wove White Cotton Belting

PRICE PER RUNNING FOOT



Width, Inches	2-ply	3-ply	4-ply	5-ply	6-ply	8-ply
1	.04					
1½	.05	.06				
2	.06	.08	.12			
2½	.06½	.10	.14			
3	.07	.12	.16			
3½	.08	.14	.18			
4	.09	.15	.21	.34		
4½	.11	.17	.24	.36		
5	.13	.19	.26	.38		
5½	.15	.21	.28	.40		
6	.17	.23	.30	.42	.46	.75
7	.19	.27	.34	.45	.51	.83
8	.21	.31	.38	.50	.57	.91
9	.23	.35	.44	.56	.66	1.03
10	.26	.39	.50	.63	.75	1.15
11	.30	.45	.55	.69		
12	.33	.48	.60	.75	.90	1.35
14	.41	.60	.75	.94	1.12	1.65
16	.49	.72	.90	1.12	1.35	1.95
18	.57	.82	1.00	1.28	1.50	2.13
20	.61	.90	1.15	1.44	1.72	2.33
22	.65	1.00	1.35	1.62	1.94	2.60
24	.69	1.10	1.55	1.80	2.16	2.85
26			1.75	2.00	2.36	3.15
28			1.90	2.15	2.60	3.35
30	.90		2.10	2.35	2.85	3.60



Outside—Finished Joint



Pulley Side—Finished Joint

Crescent Belt Fasteners

The most efficient and economical of all belt fasteners. Plates can be used many times at a trifling expense for new rivets.

TO APPLY—Square the ends of belts exactly; have both ends true and clean cut. Select proper sizes for your requirements, and be sure not to use a large plate on a small pulley. Place plate in position. Insert rivet in holder, and start so the prongs will spread ACROSS the belt. Drive through and clinch with a hammer. When using short rivets on thin belting, place a piece of wood under the joint to hammer on, then reverse and clinch prongs across the belt. On thick belting when using long rivets this is not necessary, for Crescent rivets are self-clinching when hammered on pulley, shaft or iron.

TO SHORTEN A BELT. As it is often necessary to take the slack out of a belt quickly, this unique feature of Crescent Belt Fasteners is of great value to the busy man. Withdraw the rivets from ONLY ONE END, using a No. 79 Crescent Rivet Extractor. Cut out the slack and rejoin, using a row of new rivets.

Short Grip Plates For Light Work

For belts 3/4 to 6 inches wide on pulleys 3 inches or larger diameter.

Per Gross		Per Gross	
No. 25, for 3/4 and 1 inch belts.....	1.44	No. 85, for 2 1/2 and 5 inch belts.....	5.76
No. 45, for 1 1/4, 1 1/2 and 3 inch belts.....	2.88	No. 805, for 3 and 6 inch belts.....	5.76
No. 65, for 2 and 4 inch belts.....	4.32		

Do not use short grip plates on heavier than single leather belting.

Medium Grip Plates For General Work

For belts 2 to 12 inches wide on pulleys 5 inches or larger diameter.

Per Gross		Per Gross	
No. 67, cover 1 1/2 inches of belt width.....	4.32	No. 107, cover 3 inches of belt width.....	7.20
No. 607, cover 2 inches of belt width.....	4.32	No. 127, cover 3 1/2 inches of belt width.....	8.64
No. 87, cover 2 1/2 inches of belt width.....	5.76	No. 147, cover 4 inches of belt width.....	10.08

Long Grip Plates For Heavy Work

For belts 5 to 72 inches wide on pulleys 12 inches or larger diameter.

Per Gross		Per Gross	
No. 109, cover 2 1/2 inches of belt width.....	8.64	No. 1409, cover 3 1/2 inches of belt width.....	12.96
No. 149, cover 3 inches of belt width.....	11.52	No. 189, cover 4 inches of belt width.....	14.40

Attach Crescent Short, Medium and Long Grip Plates with Crescent Large Shank Rivets, which should be 1/8 longer than the thickness of belting to allow for proper clinch.

Jumbo Plates For Extremely Heavy Work

For use on large pulleys where the drive is unusually heavy and of uneven strain, also for heavy work on conveyor belts.

Per Gross		Per Gross	
No. 1611, cover 3 inches of belt width.....	14.40	No. 2211, cover 4 inches of belt width.....	17.28

Attach Jumbo Plates with Jumbo Rivets 1/4 longer than thickness of belting.

High Speed Plates For High Speed Light Work

For small pulleys and work on small motors.

Per Gross		Per Gross	
No. 20, for 3/4 and 1 inch belts.....	1.44	No. 44, for 1 1/4, 1 1/2 and 3 inch belts.....	2.88
No. 40, for 1 and 2 inch belts.....	2.88	No. 60, for 2 and 4 inch belts.....	4.32

Attach High Speed Plates with small shank rivets 1/8 longer than thickness of belt.

Crescent Rivets

Size	1/8	3/8	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	1 1/2	1 3/4	2
Small shank.....per gross	.40	.40	.40	.40	.68	.75	.75	.85	.85	1.20	1.35	1.50
Large shank.....per gross	.60	.60	.60	.60	.68	.75	.75	.85	.85	1.20	1.35	1.50
Jumbo.....per gross					.96	1.10	1.10	1.20	1.20	1.35	1.35	1.50

A Rivet Holder is included in each gross. No. 79 Crescent Rivet Extractor..... 50

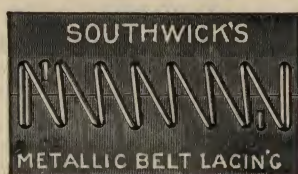


Stag Steel Belt Hooks

No.		Per 100
00	For Light Leather, Rubber or Cotton Belts $\frac{1}{8}$ to $\frac{1}{2}$ inch thick, $\frac{3}{8}$ to 3 in. wide. Packed 200 in a box.	.80
0	For Light Leather, Rubber or Cotton Belts $\frac{1}{8}$ to $\frac{1}{2}$ inch thick, $\frac{1}{2}$ to 3 in. wide. Packed 200 in a box.	1.00
1	For Single Leather, 3 ply Rubber or Cotton Belts, 1 to 5 in. wide. Packed 100 in a box.	1.20
2	For Heavy Single or Light Double Leather, 4-ply Rubber or Cotton Belts, 1 to 8 in. wide. Packed 100 in a box.	2.00
3	For Double Leather, 4 to 6-ply Rubber or Cotton Belts, 1 to 12 in wide. Packed 100 in a box.	3.40
4	For Heavy Double Leather, 6 to 8-ply Rubber or Cotton Belts, 1 in. wide and up. Packed 100 in a box.	5.00
5	For Extra Heavy Double Leather, 6 to 8-ply Rubber or Cotton Belts, $1\frac{1}{2}$ in. wide and up. Packed 100 in a box.	8.00
6	For Extra Heavy Double Leather, Rubber or Cotton Belts, from $\frac{1}{2}$ to $1\frac{1}{2}$ in. thick, $1\frac{1}{2}$ in. wide and up. Packed 100 in a box.	11.00
7	For Belts $\frac{3}{8}$ to $1\frac{1}{2}$ in. thick and Extra Heavy Conveyor Belts, 2 in. wide and up. Packed 100 in a box.	18.00



Under Side



Upper Side

Composition Wire Belt Lace

No. 0, for all belts 2" and under	Put up in boxes or
No. 1, for all belts 2" to 6"	spools containing
No. 2, for all belts 6" to 20"	fifty feet. Price per
No. 3, for all belts 20" to 40"	50 feet, all sizes
Belt punch, $\frac{3}{8}$ " tube	1.00
Combination plyers and cutter	1.25
Gouge	.50

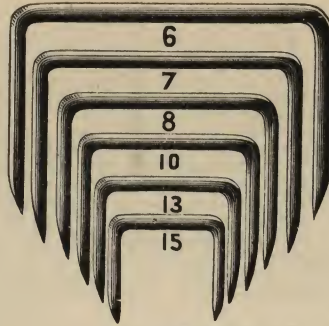


No. 4

Jones' Patent Bevel Pointed Belt Hooks

PRICE LIST PER HUNDRED

No. 10	.35	No. 6	.85	No. 2	2.00
No. 9	.40	No. 5	1.10	No. 1	3.00
No. 8	.50	No. 4	1.40	2 1/2-inch	5.00
No. 7	.60	No. 3	1.60	3-inch	6.00



Cuts Full Size



Buffalo Belt Fasteners

SIMPLE, PRACTICAL, CHEAP

No punch, awl, or other expensive tools, required to apply these fasteners. Just the thing for repairing torn belts.

SIZES TO USE

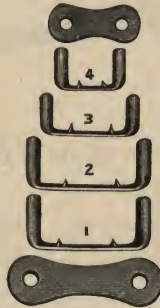
No. 15 for light single belts; for ordinary single belts, No. 13; for extra heavy and wide single and light double leather, also 4-ply rubber, use No. 10; for ordinary double belts and 4-ply rubber and cotton, No. 8; for extra heavy double and large belts, No. 6 or 7.

PRICES PER ONE THOUSAND

No. 15, 1,000 in a box-----	1.50	No. 8, 500 in a box-----	3.50
No. 13, 1,000 in a box-----	2.00	No. 7, 250 in a box-----	4.00
No. 10, 1,000 in a box-----	2.50	No. 6, 250 in a box-----	5.00



Patent Combination Punch, 1.50



Reamer, 35 cents

Smith Belt Fasteners

No. 1 for large drive belts-----	per 100, 2.00
No. 2 for cotton drive belts-----	per 100, 1.75
No. 3 for 3 or 4 ply rubber belts-----	per 100, 1.50
No. 4 for single leather belts-----	per 100, 1.25

When desired, we also furnish No. 3 and No. 4 Fasteners with rivets long enough for thick rubber or double leather belts.



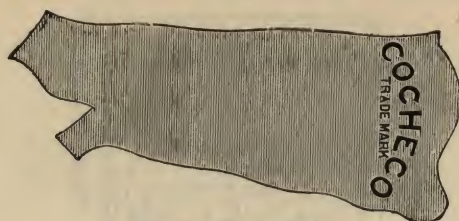
Elliott Lace Cutter

Each ----- .50



Lothrop Belt Awl

Each ----- .75



Lace Leather

Great Western Indian Tanned, Finest Quality.....per square foot, .50
 Cochecho Rawhideper square foot, .40



Great Western Indian Tanned Cut Lace

Width.....	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{8}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Per package of 100 feet.....	1.25	1.50	1.75	2.00	2.25	3.00	3.75

Rawhide Cut Lace

Same list prices as above.



Kraeuter's Belt Punches

The 8" Punch carries tubes from $\frac{3}{8}$ " down to No. 2.

The 10" Punch carries tubes $\frac{1}{2}$ " and $\frac{3}{4}$ ".

One tube furnished with each Punch. Tubes are interchangeable.

8" per dozen.....	12.65	Extra tubes, per dozen.....	3.50
10" per dozen.....	13.70	Extra tubes, per dozen.....	4.00



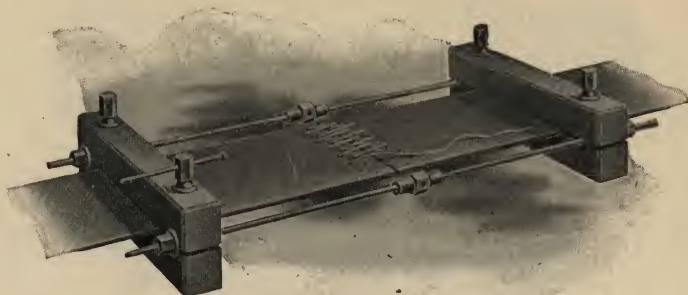
Belt Punches

BEMIS & CALL SPECIAL QUALITY. ROUND OR OVAL

No.	Each	Per Doz.	Diam. Round About	No.	Each	Per Doz.	Diam. Round About
1	.45	5.25	$\frac{1}{4}$	7	.50	5.75	$1\frac{1}{4}$
2	.45	5.25	$\frac{3}{8}$	8	.50	5.75	$1\frac{1}{2}$
3	.45	5.25	$\frac{1}{2}$	9	.50	5.75	$1\frac{3}{4}$
4	.45	5.25	$\frac{3}{4}$	10	.50	5.75	2
5	.45	5.25	1	11	.65	7.50	$2\frac{1}{4}$
6	.50	5.75	$1\frac{1}{4}$	12	.65	7.50	$2\frac{1}{2}$

Belt Cement

Peerless Belt Cement.....	per pound, 1.00
Hercules Belt Cement.....	per pound, 1.00
Rubber Belt Cement.....	per pint, .60



Iron Screw Belt Clamps

The corrugated jaws make it practically impossible for belt to slip after having been properly placed in clamp.

This clamp saves time and labor. It frequently pays for itself after one or two belts have been taken up.

Number	270	271	272	273
Width of Belt	6 to 12	12 to 18	18 to 24	24 to 36
Price	8.00	10.00	12.00	18.00



**STOP THAT
SLIPPING**



Belt Dressing

The market is full of Belt Dressings, a few of which are good, some bad, and many indifferent. We have endeavored to select a few of the best for our customers.

ROYAL WORCESTER

In paste form, quickly absorbed by the belt, and making it water proof.

In one gallon pails, per pound **.30**

STEPHENSON

Easily applied by pressing one end of the stick against pulley side of moving belt.

In pound sticks, per pound **.40**

GREEN SEAL

A liquid dressing put up in 5 and 10 pound cans.

Per pound **.35**



Water Hose

Internal Diameter	2-ply	3-ply	4-ply	5-ply	6-ply	Internal Diameter	2-ply	3-ply	4-ply	5-ply	6-ply
$\frac{1}{2}$ "	.20	.25	.30	.37	.45	3"	.99	1.20	1.50	1.87	2.25
$\frac{3}{4}$ "	.25	.30	.37	.46	.55	3 $\frac{1}{2}$ "	1.16	1.40	1.75	2.18	2.62
1"	.33	.40	.50	.62	.75	4"	1.32	1.60	2.00	2.50	3.00
1 $\frac{1}{4}$ "	.42	.50	.62	.77	.93	5"	1.65	2.00	2.50	3.13	3.75
1 $\frac{1}{2}$ "	.50	.60	.75	.93	1.12	6"	1.98	2.40	3.00	3.75	4.50
1 $\frac{3}{4}$ "	.58	.70	.87	1.08	1.30	7"	2.31	2.80	3.50	4.38	5.25
2"	.66	.80	1.00	1.25	1.50	8"	2.64	3.20	4.00	5.00	6.00
2 $\frac{1}{4}$ "	.75	.90	1.12	1.40	1.68	9"	2.97	3.60	4.50	5.63	6.75
2 $\frac{1}{2}$ "	.83	1.00	1.25	1.56	1.87	10"	3.33	4.00	5.00	6.25	7.50
2 $\frac{3}{4}$ "	.92	1.10	1.37	1.71	2.05						

Steam Hose

Internal Diameter	3-ply	4-ply	5-ply	6-ply	7-ply	8-ply
$\frac{1}{2}$ "	.47	.56	.70	.84	.98	1.12
$\frac{3}{4}$ "	.57	.71	.87	1.05	1.23	1.41
1"	.70	.87	1.07	1.28	1.50	1.70
1 $\frac{1}{4}$ "	.85	1.04	1.30	1.56	1.82	2.08
1 $\frac{1}{2}$ "	1.02	1.25	1.56	1.87	2.18	2.50
1 $\frac{3}{4}$ "	1.18	1.45	1.81	2.17	2.53	2.90
2"	1.34	1.66	2.07	2.49	2.90	3.32
2 $\frac{1}{4}$ "	1.50	1.87	2.33	2.80	3.27	3.74
2 $\frac{1}{2}$ "	1.66	2.08	2.60	3.12	3.64	4.16

Steam heat is employed to vulcanize the rubber in making steam hose. The intense heat accompanying the continued use of steam hose causes the rubber to gradually harden and lose its adhesive and elastic qualities. The higher the steam pressure the shorter the life of the hose.

Maximum Pressure For Steam Hose

POUNDS PER SQUARE INCH

Hose Size Inches	Number of Plies						
	4	5	6	7	8	9	10
$\frac{1}{2}$	70	80	90	100	-----	-----	-----
$\frac{3}{4}$	60	70	80	90	100	-----	-----
1	50	60	70	80	90	100	-----
$1\frac{1}{4}$	40	50	60	70	80	90	100
$1\frac{1}{2}$	30	40	50	60	70	80	90
2	20	30	40	50	60	70	80



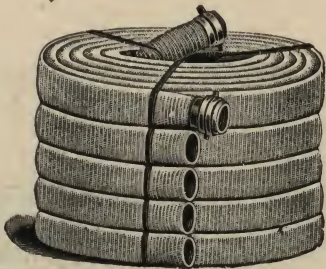
Pneumatic Hose

Designed especially for use in connection with compressed air. Ordinary hose or tubing will not give satisfaction for this special service.

Internal Diameter -----	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2
4 Ply -----	.56	.71	.87	1.04	1.25
5 Ply -----	.70	.87	1.07	1.30	1.56
6 Ply -----	.84	1.05	1.28	1.56	1.87

Brewers Hose

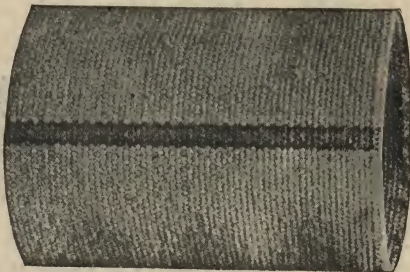
LIST PRICES SAME AS STEAM HOSE



Cotton Mill Hose

For fire protection in mills, factories, warehouses, public buildings, etc. This hose is light and durable, and reels closely.

Internal diameter ----- inches	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$
Price ----- per foot	.45	.50	.65	.80



Linen Hose

This hose is recommended for fire protection on stand pipes in buildings, as it occupies but little space. Does not deteriorate.

Internal diameter ----- inches	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{4}$	2 $\frac{1}{2}$
Unlined ----- per foot	.35	.45	.54	.70	.75	.80



Garden Hose

We carry a large stock of all grades and kinds of Garden Hose. Ask for samples with prices.

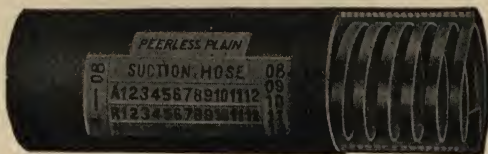
Fire Hose

We can furnish for fire purposes either Cotton or Rubber Fire Hose of several grades, samples and prices of which we shall be pleased to submit on application.



Suction Hose ON SPIRAL SPRING WIRE

Internal diameter	$\frac{3}{4}$	1	$1\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{1}{2}$	2
On brass wire .....	.77	1.00	1.25	1.65	2.10	2.50
On tinned wire .....	.70	.90	1.15	1.50	1.90	2.30



Plain Suction Hose ON FLAT OR ROUND GALVANIZED WIRE

Internal diameter	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6
Per foot	3.10	4.00	4.90	5.80	6.70	7.60	8.50	9.50
Internal diameter	$6\frac{1}{2}$	7	$7\frac{1}{2}$	8	9	10	12	
Per foot	10.50	12.00	13.50	15.00	17.50	20.00	25.00	



Smooth Bore Suction Hose ON SPIRAL FLAT GALVANIZED WIRE

The galvanized iron coil in this hose is securely enclosed in smooth rubber walls, and is thereby protected from the action of water passing through it, and the friction occasioned by the rough inside surface of ordinary plain suction is entirely avoided.

Internal diameter	2	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$
Per foot	2.60	3.50	4.50	5.50	6.50	7.50	9.50
Internal diameter	6	7	$7\frac{1}{2}$	8	9	10	12
Per foot	10.50	12.00	13.50	15.00	16.50	19.50	27.50



Hard Rubber Suction



Covered Suction

Hard Rubber Suction Hose

This hose is made of very hard compounds and stiff duck without wire.

internal diameter.....	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Per foot.....	.65	.75	.93	1.13	1.50

Agricultural Wired Covered Suction Hose

WITH WOVEN PAINTED JACKET

2 inches internal diameter in 15, 20 and 25 foot lengths.....per foot, 1.50

Agricultural Wired Portable Suction Hose

WITH CAPPED ENDS FOR TANK PUMP USE

2 inches internal diameter in 15, 20 and 25 foot lengths.....per foot, 1.50



Oil and Petroleum Hose

List Prices same as Steam Hose.



Vacuum Hose

Recently developed systems of sanitary cleaning have created a demand for a light and flexible suction hose of small size in long lengths.

Net prices quoted on application.

Winding Hose

Prices on application.



Hose Pipe, Screw Tip



Plain Hose Nozzle



Hose Pipe With Cock and Tip

Hose Pipes With Screw Tip

Size	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$
Length.....inches	6	$7\frac{1}{2}$	12	$8\frac{1}{2}$	$12\frac{1}{2}$	12	15	13	15
Hose pipe thread.....dozen	7.00	8.00	10.00	10.00	12.00	20.00	24.00	25.00	30.00
Iron pipe thread.....dozen	8.00	9.20	11.20	11.20	13.20	21.20	25.00	27.50	32.50
Size	$1\frac{1}{2}$	2	2	2	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$
Length.....inches	20	12	15	20	15	20	24	30	36
Hose pipe thread.....dozen	36.00	38.00	45.00	50.00	75.00	96.00	100.00	144.00	157.00
Iron pipe thread.....dozen	39.00	41.00	48.00	53.00	78.50	99.50	103.50	150.00	163.00

Plain Hose Nozzles

Size	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$
Length.....inches	3	4	6	4	8	$4\frac{1}{2}$	12	$5\frac{1}{2}$	12
Hose pipe thread.....dozen	4.00	5.00	7.00	5.00	9.00	12.00	18.00	18.00	22.00
Iron pipe thread.....dozen	5.00	6.00	8.00	6.25	10.00	13.75	19.75	19.75	24.00
Size	2	2	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$			
Length.....inches	$6\frac{1}{2}$	12	$7\frac{1}{2}$	12	15	20			
Hose pipe thread.....dozen	26.00	34.00	37.40	55.00	65.00	90.00			
Iron pipe thread.....dozen	29.00	39.00	39.50	60.00	68.00	92.00			

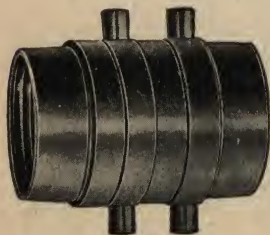
Hose Pipes With Cock and Tip

Size	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	2	2
Length.....inches	$6\frac{1}{2}$	8	12	8	12	12	15	12	15	25
Hose pipe thread.....dozen	11.00	13.00	18.00	15.00	20.00	40.00	50.00	55.00	65.00	80.00
Iron pipe thread.....dozen	12.20	14.20	19.20	18.00	23.00	43.00	59.00	60.00	74.00	88.00

Always state whether hose thread or iron pipe thread is wanted.

Hose Nozzles, to Wind

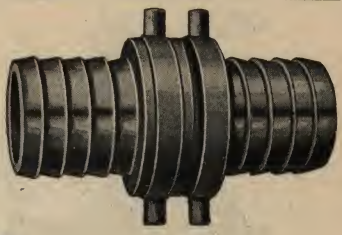
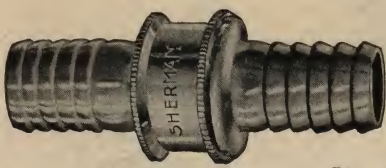
Size	$\frac{3}{4}$	1
Length.....inches	$5\frac{1}{2}$	6
Price.....dozen	4.00	5.00



"Mill" Expansion Ring Couplings

Size	1	$1\frac{1}{2}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Per set	1.25	1.50	2.00	2.50	3.00
Expansion Rings.....dozen	1.10	1.20	1.30	1.50	1.70

Always state whether hose thread or iron pipe thread is wanted.



Hose Couplings

Size	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3
Hose pipe thread.....dozen	2.40	2.40	2.40	4.40	10.00	14.00	24.00
Iron pipe thread.....dozen	2.65	2.65	2.65	4.65	10.50	15.00	26.00

Always state whether hose thread or iron pipe thread is wanted.



Steam Hose Couplings

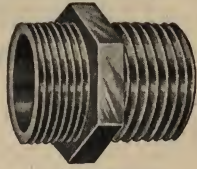
Size	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$
Iron pipe thread.....dozen	15.00	15.00	18.00	24.00	30.00	42.00



Hose Clamp



Hose Valve



Hose Nipple



Hose Mender

Sherman Hose Clamps

Size	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3
For Water Hose.....dozen	.60	.60	2.00	2.50	3.00	4.00	7.00
For Steam Hose, 3 and 4 ply.....dozen		2.00	2.50	3.00	3.50	5.50	8.50
For Steam Hose, 5 ply.....dozen					4.00	6.50	9.50

Chicago Hose Valves

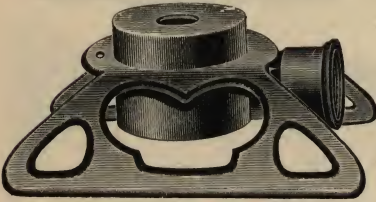
Size	1	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$
Price.....each	3.15	3.70	4.75	7.00

Hose Nipples

Size	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3
Price.....dozen	3.50	3.50	5.00	9.00	10.00	14.00	28.00

Hose Menders

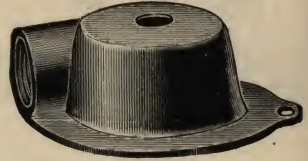
A seamless tube, heavily corrugated, that can be shoved into old hose without loosening the inside tube. Made in $\frac{1}{2}$, $\frac{3}{4}$ and 1 inch sizes. Per dozen..... 1.20



Evanston Sprinkler



Marquette



C. B. G. Sprinkler

Evanston Sprinkler

A most excellent Sprinkler at a moderate price. Will not clog.

3" nickel plated	each, 1.50
4" japanned	each, 1.25

C. B. G. Sprinkler

Made on the general order of the Evanston, but somewhat smaller and with a less expensive finish.

3" japanned	each, .50
-------------	-----------

Marquette Lawn Sprinkler

The cheapest, simplest, and most durable device for sprinkling lawns. Throws water in a half circle. Can be moved from one place to another without shutting off water or wetting operator. All nickel plated.

3"	each, .40
----	-----------



Diamond Nozzle

Throws a straight stream, fine or coarse mists, and shuts off.

1/2 inch	per dozen, 10.00
----------	------------------



Sherman Spray Nozzle

3/4 inch	per dozen, 12.00
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Rough, For Hose



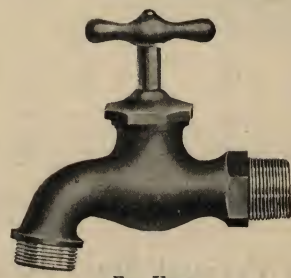
Finished

Brass Bibb Cocks

Iron pipe size.....		$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	2
Roughdozen		17.40	18.60	30.40	42.00	70.20	105.00
Finished .....dozen		21.60	22.80	36.60	51.00	82.20	123.00
Rough, for Hose.....dozen			21.70	33.00	48.00	79.20	117.00
Finished, for Hose.....dozen			25.20	39.00	57.00	91.20	135.00
							228.00



Plain



For Hose

Compression Bibbs

Iron pipe size.....		$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1
Compression Plain Bibbs, finished.....dozen		13.80	14.40	26.40	48.00
Compression Hose Bibbs, finished.....dozen			16.80	28.80	54.00



Tee Handle



Lever Handle

Rough Stops

Iron pipe size.....		$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	2
Tee Handle .....dozen		18.60	30.60	42.00	70.20	105.00
Lever Handle .....dozen		18.60	30.60	42.00	70.20	105.00

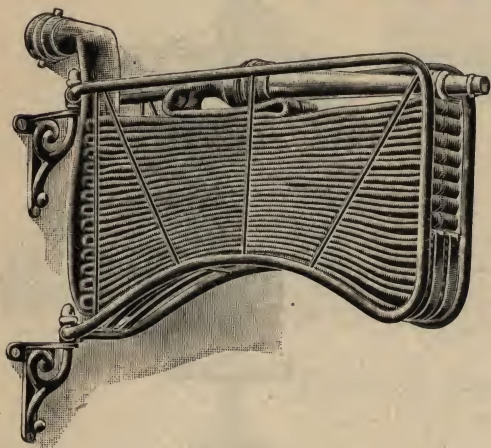
Rough Stops With Check and Waste

Iron pipe size.....		$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	2
Tee Handle .....dozen		19.20	31.20	43.20	72.00	108.00
Lever Handle .....dozen		19.20	31.20	43.20	72.00	108.00

Hydrant Cocks With Check and Waste

Iron pipe size.....		$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$
Tee Handle .....dozen		22.80	38.40	52.80	82.80

Hump Swinging Hose Racks



FOR UNLINED LINEN HOSE

No.	Price	Size Hose	Capacity Feet
A0	5.00	1½ or 1¾	50
A0X	5.00	2	50
A00	5.00	2½	50
A1	6.00	1½ or 1¾	100
A1X	6.00	2	100
A2	6.00	2½	100
A3	7.00	1½ or 1¾	150
A3X	7.00	2	150
A4	7.00	2½	150
A5	7.50	1½ or 1¾	200
A5X	7.50	2	200
A6	8.00	2½	200

FOR COTTON RUBBER LINED HOSE

No.	Price	Size Hose	Capacity Feet
A3	7.00	1½ or 1¾	50
A3X	7.00	2	50
A4	7.00	2½	50
A5	7.50	1½ or 1¾	100
A5X	7.50	2	100
A6	8.00	2½	100

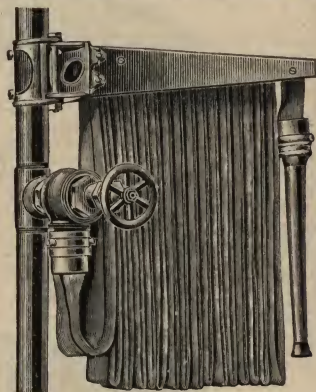
In ordering, give size, kind and length of hose you will use, and whether you want wall brackets or pipe clamps; if latter, give diameter of pipe.

Royal Pressed Steel Hose Racks

No. 18 holds 25' to 75' unlined linen hose..... 5.00
 No. 19 holds 100' to 150' unlined linen hose..... 6.00

The sides and top of rack are made of one piece of metal, which protects top folds of hose from dust. As each successive fold is withdrawn, one end of supporting pin drops, releasing one fold of hose, the pin remaining attached to opposite side of rack ready for use when hose is returned to rack.

In ordering, give diameter of hose and whether you wish wall brackets or pipe clamps; if the latter, give diameter of pipe.



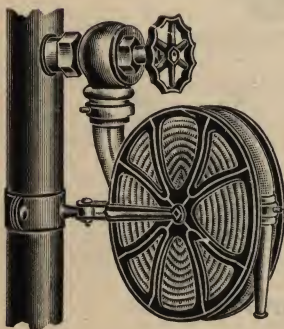
Ryerson Hose Reels

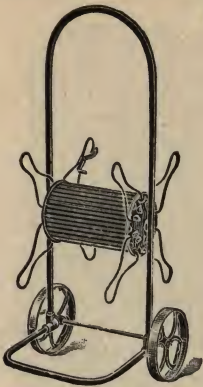
FOR UNLINED LINEN HOSE

No.	Price	Size Hose	Capacity Feet
C13	6.00	1 or 1½	50
C14	6.00	1½	50
C15	6.50	2	50
C16	7.00	2½	50
D17	6.25	1 or 1½	75
D18	6.50	1½	75
D19	6.75	2	75
D20	7.25	2½	75
I30	6.25	1 or 1½	100
I31	6.50	1½	100
I32	7.00	2	100
I33	7.50	2½	100

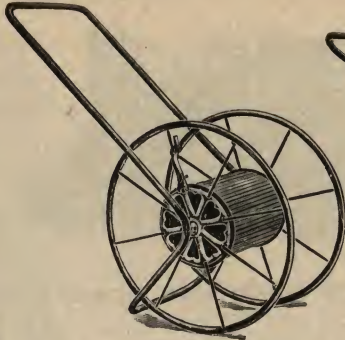
FOR RUBBER LINED COTTON HOSE

No.	Price	Size Hose	Capacity Feet
H61	9.00	1½	75
H62	9.50	1½	75
H63	10.00	2	75
H64	11.00	2½	75

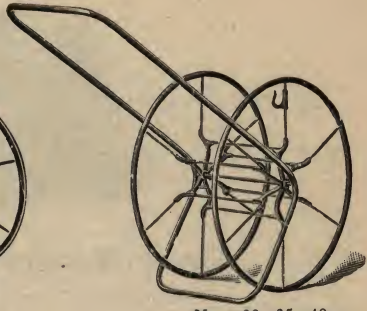




K. C. No. 1



No. 10 and No. 20



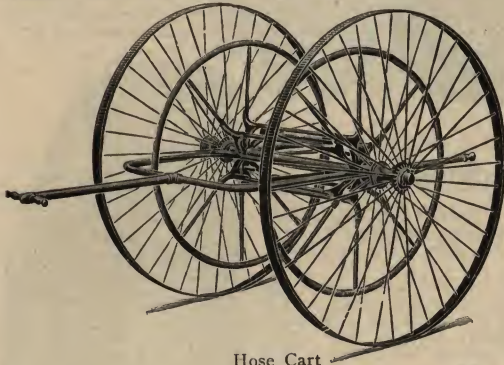
Nos. 30, 35, 40

Tubular Steel Hose Reels

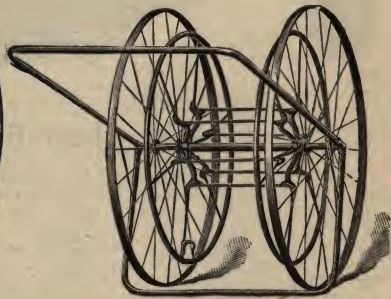
Number	10	20	30	35	40
Price	3.50	4.00	6.50	12.00	25.00
Weight	18	20	30	52	80
Capacity, $\frac{3}{4}$ " 3 ply Rubber Hose	100	150	400	600	800
Capacity, 1" 4 ply Rubber Hose	50	75	150	200	300
Capacity, $1\frac{1}{4}$ " 4 ply Rubber Hose			100	150	250
Capacity, $1\frac{1}{4}$ " Cotton Rubber Lined Hose		100	200	350	500
Capacity, $1\frac{1}{2}$ " Cotton Rubber Lined Hose		75	150	250	400
Capacity, 2" Cotton Rubber Lined Hose			100	200	300

K. C. No. 1 Hose Reel

Capacity, 100 feet $\frac{3}{4}$ " hose, weight, 12 $\frac{1}{2}$ pounds-----price 2.00



Hose Cart



Warehouse Hose Reel

Warehouse Hose Reels

Number	21	31	32	41	51	61
Price, all Steel	7.50	10.50	25.00	35.00	45.00	55.00
Weight	40	50	100	150	185	200
Height of Wheels	28	34	38	42	48	52
Capacity, $\frac{3}{4}$ " 3 ply Rubber Hose	200	500	800			
Capacity, 1" 4 ply Rubber Hose	100	200	350			
Capacity, $1\frac{1}{4}$ " Cotton Rubber Lined Hose	150	300	500			
Capacity, $1\frac{1}{4}$ " Cotton Rubber Lined Hose	100	200	350	500	650	800
Capacity, 2" Cotton Rubber Lined Hose	75	150	250	350	500	600
Capacity, $2\frac{1}{2}$ " Cotton Rubber Lined Hose	50	100	200	250	400	500

Hose Carts

Number	90	100	110	101	102	103
Price, all Steel	12.00	17.00	25.00	35.00	45.00	55.00
Weight	75	90	100	145	175	200
Height of Wheels	36	36	38	42	48	52
Capacity, $1\frac{1}{4}$ " Cotton Rubber Lined Hose	300	400	500			
Capacity, $1\frac{1}{2}$ " Cotton Rubber Lined Hose	200	300	400	500	650	800
Capacity, 2" Cotton Rubber Lined Hose	150	200	250	350	500	600
Capacity, $2\frac{1}{2}$ " Cotton Rubber Lined Hose	100	150	200	250	400	500



Great Western Invincible Sheet Packing

This is a red packing manufactured from high grade rubber into which is incorporated heat resisting compounds, vulcanized at a higher degree of heat than it ever comes in contact with in a joint. It is especially adapted to and recommended for packing STEAM, HOT WATER AND AMMONIA JOINTS.

Joints should be faced with plumbago, lampblack or chalk. This packing can be taken out and repeatedly replaced.

Price per pound, any thickness, 36" wide..... .80

Rainbow Sheet Packing



This packing is especially adapted for very high pressure, and is not affected by any degree of steam heat. It will not harden under any degree of heat, or blow out under the highest pressure, and will make an air, steam, hot or cold water joint equally well.

It is not affected by oils, ammonia, liquors, steam, heat, or alkalis.

Price per pound, any thickness, 36" wide..... .80

Ebonite Sheet Packing

Many tests of varying length and severity have proven this packing to be the most serviceable for high pressures, superheated steam, hot water, ammonia, oils and acids, and all other kinds of joints requiring packing.

If in your steam plant or connections there is a troublesome joint—a joint that won't stay packed—that is always leaking or blowing out, or burning out, try EBONITE. Write us first, describing the situation fully, giving the size, pressure, etc. If EBONITE fails to do what we claim, you have no bill to pay. Comes 36 inches wide. Per pound..... 1.00



Jenkins '96 Sheet Packing

Jenkins '96 is an unvulcanized packing, and when used in a joint is soft enough to fill up any roughness of the surfaces, while its strength prevents it from blowing out when pressure is turned on. It will stand high temperatures and pressures of water, steam, acids or ammonia.

A joint properly made requires no further attention.

Per pound, 36" wide..... 1.00

IN ORDERING SHEET PACKINGS, PLEASE ALWAYS GIVE SIZE OF PIECE WANTED INSTEAD OF WEIGHT.



Asbesto-Metallic Sheet Packing

This packing is made from asbestos yarn and fine brass wire woven and twisted together, making a very strong and flexible packing for high pressure steam, gasoline engines, etc.

Comes in rolls 40" wide.

Per pound..... 1.00

IN ORDERING SHEET PACKINGS, PLEASE ALWAYS GIVE SIZE OF PIECE WANTED INSTEAD OF WEIGHT.

Cloth Insertion Sheet Rubber Packing

There is one ply of cloth to every $\frac{1}{16}$ " thickness. The cloth, whether used as an insertion or on the outside, counts as one ply. Comes in rolls 36" wide.

Per pound..... .60



Invincible Piston and Valve Rod Packing

This packing is made with round red rubber core, surrounded by layers of soft, loosely woven duck, thoroughly impregnated with finest grade of plumbago. It will tightly pack any rod, however badly scored or corroded, and will not get hard under any degree of heat.

Price.....per pound, 1.00



Palmetto Braided



Palmetto Twist

Palmetto Braided Packing

Designed especially to meet the exacting conditions of steam, super-steam, air, and ammonia. It is made of a material that cannot char or burn, and, owing to our peculiar method of lubrication, it does not get hard in service.

Price.....per pound, 1.00

Palmetto Twist Packing

An ideal Packing for small valve-stems, such as globe-valves, blow-off cocks, injectors, etc.

Price.....per pound, 1.25



Ring Form



Coil Form



Regular in Spiral Form



Special in Spiral Form

Great Western Diagonal Packings

Our Regular Diagonal Packing is for steam pressures of about 100 pounds or less, ordinary water pressures, warm or cold, valve stems, etc. This Packing is composed of two wedges and a yielding absorbent cushion. The wedges are made of material that will stand wear, and are lubricated and graphited so they will slide freely on each other, which automatically adjusts the packing to the rod. The cushion absorbs oil that may be put on the rod or fed to the box by other means, and thus lubricates the rod evenly and regularly. The cover is of finely braided cotton thread. The Packing is wrapped with muslin to keep out all dirt or grit that might cut or score the rod. This muslin should always be removed before placing packing in stuffing box.

The Special Diagonal Packing is recommended for steam pressure above 100 pounds, high ammonia pressure, high hydraulics, hot water, valve stems, etc., or any extremely severe conditions. This Packing differs from the Regular, in that it has a firm round cushion especially adapted for high temperatures and high pressures.

We guarantee this Packing equal to any Diagonal Packing on the market.

In packing a rod always cut packing into rings. The ends of the rings should not meet around the rod, but should stand open from $\frac{1}{4}$ -in. to $\frac{3}{8}$ -in., according to size of rod. The smaller the rod the less opening. The packing will become longer as it sets to the rod. Always break joints with the rings on side or top of rod, not on bottom.

	Coil	Spiral	Ring
Regular Diagonal Packing-----per pound	1.00	1.25	1.50
Special Diagonal Packing-----per pound	1.25	1.50	1.75

Daniel's P. P. P. Packings

	Coil	Spiral	Ring
Regular P. P. P. Packing-----per pound	1.00	1.25	1.50
Special P. P. P. Packing-----per pound	1.25	1.50	1.75



Tubular Gasket



Standard Manhole Gasket

Invincible Tubular Gaskets

The Invincible Gasket can be readily fitted to any size man or hand hole plate in use, and a perfectly tight joint guaranteed in all cases where the plain and simple directions which accompany each box, are followed.

The Invincible Gasket is red in color, and composed of the Invincible packing compound. It will not harden under any degree of heat or blow out under the highest pressure, and can be taken out and repeatedly replaced. Joints can be made in from three to five minutes.

All pieces, no matter how small, can be formed on the metal tubes into a sectional gasket, as shown in cut.

$\frac{1}{4}$ and $\frac{3}{8}$ inch for pipe unions.

$\frac{1}{2}$ inch for hand-hole plates.

$\frac{3}{4}$ and 1 inch for man-hole plates.

Price.....per pound, 1.00

Eclipse Sectional Rainbow Gaskets

$\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$ and 1 inch.....per pound, 1.00

Asbesto-Metallic Tubular Gaskets

A prominent feature of this gasket is that it will not burn nor squeeze out under high pressure or temperature.

Made in $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$ and 1 inch.....per pound, 1.50

Asbesto-Metallic Standard Gaskets

Standard Manhole sizesper pound, 1.50
Standard Handhole sizesper pound, 2.00



Hemp Packing

Italian AA. Italian A. Italian B.
American A. American B.
Prices on application.

Morrison Self-Lubricating Packing

All sizes.....per pound, .60



Elastic Ring



Sectional Ring



Spiral

Great Western Spiral Packing

Price.....per pound, 1.20

Garlock Packing

Price.....per pound, 1.20



Selden Piston Packing

Rubber Coreper pound, .80



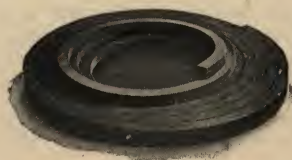
Asbestos Packing

Asbestos Rope Packing.....	per pound, .60
Asbestos Wick Packing.....	per pound, .60
Asbestos Mill Board Packing, sheets 40x40.....	per pound, .20
Asbestos Paper.....	per pound, .10



Square Flax Packing

Price.....per pound, .60



Square Hydraulic Packing

Soft, for cold water.....per pound, 1.00
Hard, for hot water.....per pound, 1.25



Piston Packing

Square Duckper pound, .85
Round Duckper pound, .85
Square Duck, Rubber Back.....per pound, 1.00

Miscellaneous Packings

Empire Round Core Packing.....per pound, .60
Eureka Oval Core Packing.....per pound, .60
Vulcabeston Packing.....per pound, 1.50
Soap Stone Packing.....per pound, .20
Candle Wickper pound, .30
Sheet Leadper pound, .10



Pump Valves

Soft Valves for cold water.....per pound, 1.50
Hard Valves for hot water.....per pound, 1.50

Paragon Fire Extinguisher

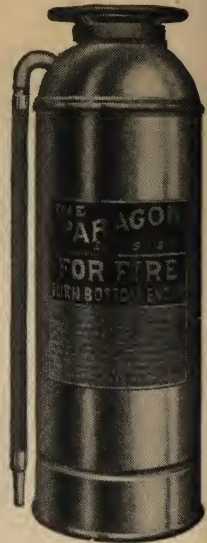
Every "PARAGON" is carefully tested to 350 pounds to the square inch hydrostatic pressure. Directions for operating and recharging are stamped on a brass plate attached to the front of the machine. The extinguisher is operated by inverting it. Instantly carbonic acid gas is formed and a pressure of about 90 pounds to the square inch is generated. The gas pressure is the propelling as well as the extinguishing power.

The chemical stream is forty times as effective as water on fire. One charge is furnished with each "PARAGON."

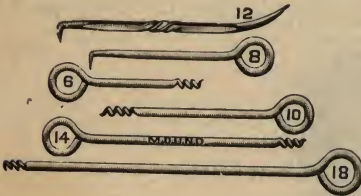
The "PARAGON" is tested under supervision of Underwriters' Laboratories, Inc., and approved.

A stream 40 to 50 feet is thrown from the "PARAGON" which will instantly extinguish burning tar, varnish, naphtha, kerosene, etc., where water would be useless and only spread the fire. The acid bottle is the regular form and size and if broken can be easily obtained at any drug store. Weight, 30 lbs.

3 Gallon Polished Copper.....each, 15.00



Mound Packing Tools



The modern engineer fully realizes the importance and time-saving feature of good tools around an engine room, and the inconvenience and loss of time and annoyance caused by the lack of them. Not the least in the list of engine room tools is a set of packing tools.

These tools are made from a special tool steel, are warranted not to break in removing packing from stuffing boxes of engines, pumps, etc., and need only to be seen to be appreciated. Can be bent to meet any requirements. Handsomely nickel plated. The small

sizes in above set are made from $\frac{1}{8}$ in. the medium from $\frac{1}{4}$ and the large size from $\frac{3}{8}$ in. steel.

- No. 1—Set of 4 Packing Tools, Nos. 6, 10, 12, 14..... 1.50
- No. 6—Set of 6 Packing Tools, Nos. 6, 8, 10, 12, 14, 18..... 2.25



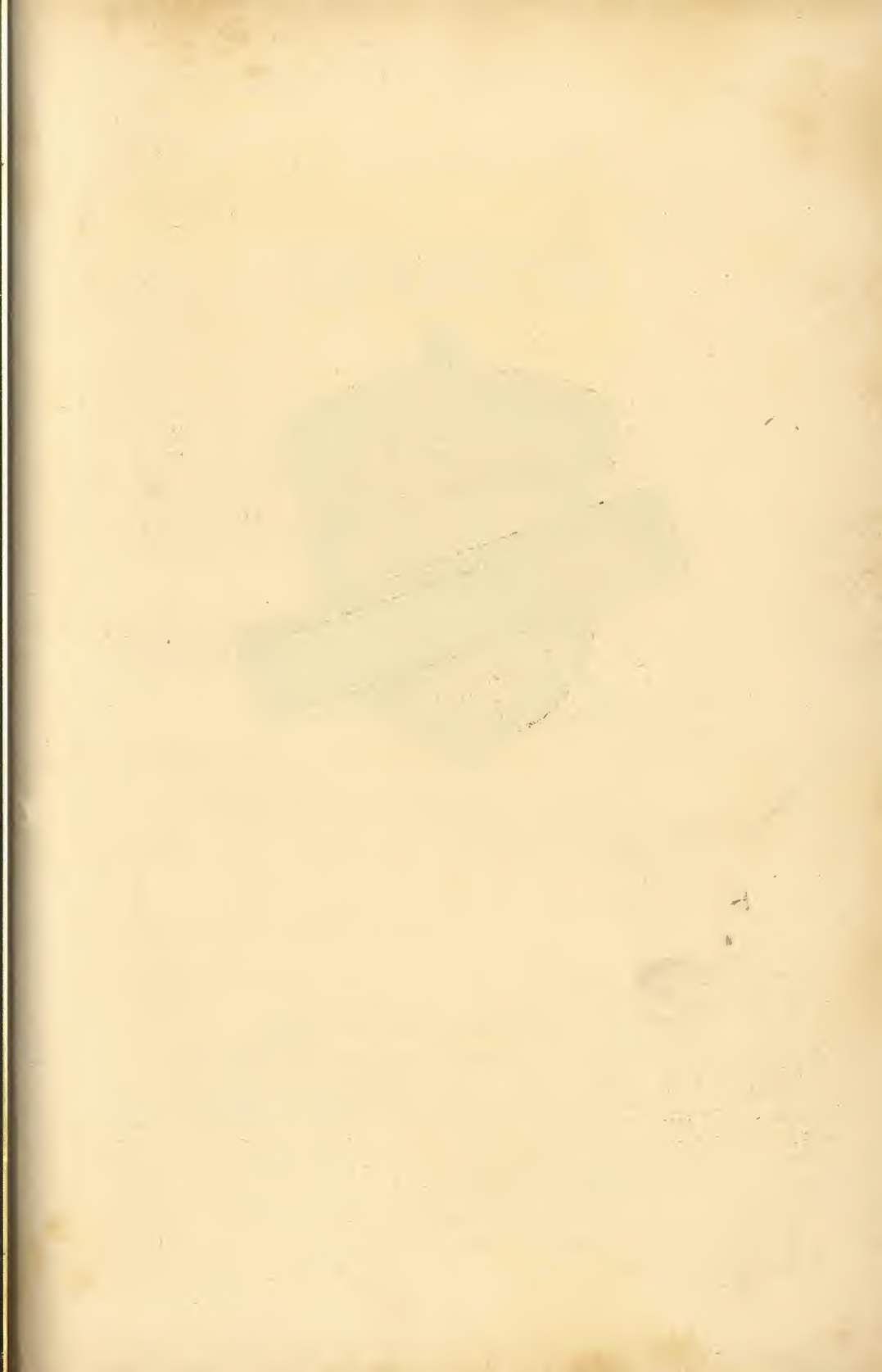
Ideal Metal Polish

LIQUID

- No. 0. 3-ounce cans.....per doz., 1.50
- No. 1. Half-pint cans.....per doz., 3.00
- No. 2. Pint cans.....per doz., 5.40
- No. 3. Quart cans.....per doz., 9.00
- No. 4. Half-gallon cans.....per doz., 15.00
- No. 5. Gallon cans.....per doz., 27.00

PASTE

- No. 6. 1-ounce boxes.....per doz., .65
- No. 7. 3-ounce boxes.....per doz., 1.25
- No. 7½. Half-pound boxes.....per doz., 3.00
- No. 8. Pound boxes.....per doz., 5.40
- No. 9. 5-pound pails.....per doz., 24.00





Cadman's Aluminum Babbitt Metal

DOES NOT CONTAIN EITHER LEAD OR ZINC

Twenty years of the hardest kind of work has demonstrated that no other bearing metal equals CADMAN'S ALUMINUM BABBITT METAL, "Acorn Brand" for high speed and heavy pressure. Weight and wearing qualities considered, it is the most economical metal to use. Weighs only 4.2 ounces per cubic inch, 3.809 cubic inches to the pound.

One pound covers a surface of 15.236 square inches $\frac{1}{4}$ -inch in thickness.

Always Standard. Never Varies in Quality.

Price.....per pound, .60

Frictionless Bearing Metal



THE STANDARD FOR OVER TWENTY YEARS

PRICES QUOTED ON APPLICATION

DIRECTIONS FOR USING

Melt slowly in a clean ladle, and when sufficiently hot to brown a pine stick and after stirring with same, metal is ready for pouring. Melt a larger body of metal than is required for bearing, thereby securing a good and low heat. If you are in the habit of using a forge on which to melt the metal, be particular to see that the blast is SHUT OFF. "FRICTIONLESS" does not deteriorate by melting BUT OVERHEATING WILL RUIN IT.

GREAT WESTERN MANUFACTURING CO.

DISTRIBUTERS

Kansas City, Missouri



Frictionless Metal

Packed In

SQUARE YELLOW BOXES

of

28 lbs., 56 lbs. and 112 lbs. Each

SPECIFY

Frictionless Metal

**Best on Earth for all
Machinery Bearings**

GREAT WESTERN MFG. CO.

Distributors

KANSAS CITY,

MISSOURI



Cotton Waste

No. 1 White.....	per pound, -----	No. 1 Colored.....	per pound, -----
No. 2 White.....	per pound, -----	No. 2 Colored.....	per pound, -----



Babbitt Metal

We wish to draw special attention to our Royal grade of babbitt. This metal was originally designed for use on the bearings of roller mills, and has been successfully used for this purpose over 25 years. It is really a better metal than many that are extensively advertised and sold at higher prices. Try it on some troublesome bearing.

Our "D" grade is a special metal for hangers, journal boxes, pillow blocks, etc., that has been used by us for many years with excellent results on medium and slow speed bearings.

Hoyt's Genuine	per pound, -----
Faultless Copper Hardened.....	per pound, -----
Magnolia	per pound, -----
Frictionless	per pound, -----
Royal	per pound, -----
"D"	per pound, -----



Babbitt Ladles

Size	inches	2½	3	3½	4	5	6	7	8	9	10
Per dozen		3.75	4.65	5.50	6.50	8.75	10.00	22.00	28.00	45.00	54.00

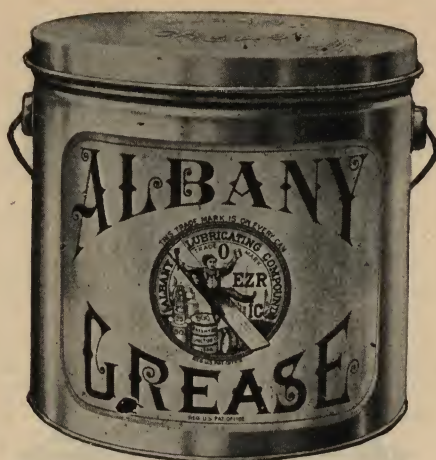
These ladles are drop forged, of extra heavy mild steel, and are well finished in every respect.

Boiler Compound

Western Boiler Compound is a liquid and contains no substance that will in any way injure the boiler, pipes, engine, pumps or machinery. It in no way imparts odor, color or taste to live steam, hence is used in packing houses, ice plants, laundries, creameries, hotels, bakeries, hospitals, etc., with great success.

We will ship you the Western Boiler Compound and guarantee it to remove scale from your boilers, and prevent its further formation, if used according to directions.

Price in bbls. and half bbls.....	per pound, .07
Price in cases containing two 5 gallon cans.....	per pound, .08



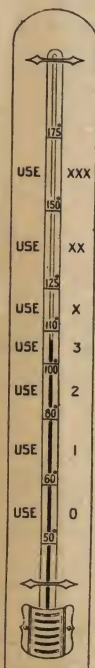
Albany Grease

Albany Grease is a pure lubricant. It does not drip, splash, or waste away; runs only while shaft is in motion. No drip pans required. Impossible for bearings to become overheated.

Albany Grease is made in seven regular numbers of varying melting points, which permits its use under all conditions. It will feed perfectly through any grease cup.

PRICES

Cans containing 1 pound.....	per pound, .25
Cans, 5, 10 and 25 pounds.....	per pound, .20
Cans, 50 pounds.....	per pound, .19
Kegs, 125 pounds.....	per pound, .17
Half-barrels, 200 pounds.....	per pound, .14
Barrels, 400 pounds.....	per pound, .13



USE THE RIGHT KIND. The Thermometer tells the number.

No. XXX is a grade made for unusual conditions, very hard, and will stand a higher degree of melting point than the XX grade.

No. XX is a grade of extra hardness, and made to stand a higher degree of melting point than the X grade.

No. X is a grade of extra hardness, which will lubricate journals with entire satisfaction when oil fails.

No. 3 is adapted to the use of all stationary, marine and tug boat engines; also shafting in warm weather, dynamos, general electrical and high speed machinery.

No. 2 is harder than No. 1 and is the grade ordinarily used in moderate and warm weather on general shafting.

No. 1 is harder than No. 0 and is used on ordinary journals in cold weather, or on very cold or slow-running journals, also elevator slides.

No. 0 is very soft, being used in extreme cold weather and on exposed journals.

In summer use heavy grease. In winter use soft grease. Hang a thermometer near the bearings. Note the temperature, then order the corresponding number.

An Albany Grease Cup filled with Albany Grease will run weeks or months without refilling or attention; therefore it will save the time of men and machines lost in oiling up and lessens the risk of personal injury suits by keeping men from going into dangerous places to oil up. It also Lessens the Loss on goods as it does not drip or spatter—and reduces Fire Risk as you cannot kindle a fire with Albany Grease.

Cook's Lubricant

Specially designed for automobile use, as it remains the same consistency winter and summer. It will be as efficient one year from the time it is placed in the case as it is on the first day. There is nothing on the market just like it.

This lubricant is made in two consistencies, light and medium; the former is recommended for transmissions, and the latter for truck transmissions and differentials.

PRICES

In 1 pound cans.....	per pound, .25
In 5, 10 and 25 pound cans.....	per pound, .20
In 125 pound kegs.....	per pound, .16
In 200 pound half-barrels.....	per pound, .14
In 400 pound barrels.....	per pound, .12



White Star Oil Filter



Cross Oil Filter

White Star Oil Filters

No.	List	Filtering Capacity Gallons per Day	Capacities, Gallons				Dimensions	
			Pure Oil	Dirty Oil	Water	Total Oil and Water	Diameter Inches	Total Height Inches
2	35.00	20	12	4	4	20	16	34
4	50.00	35	20	5	5	30	18	37
5	55.00	40	24	7	7	38	20	38
7	75.00	60	32	9	9	50	22	40
10	85.00	80	44	11	11	66	24	44
12	100.00	100	55	15	15	85	26	47
15	125.00	125	80	17	17	114	29	50

We are prepared to furnish Continuous Oiling Systems employing the Duplex and Multiplex types of White Star Filters for any size power station. Special booklet sent on application.

Cross Oil Filters

Number	Price	Filtering Capacity, Gallons per Day	Diameter, Inches	Height, Inches	Weight
1	29.50	15 to 20	18	30	45
2	19.50	3 to 5	12	26	24
3	60.00	30 to 40	24	36	82
4	75.00	50 to 60	30	54	163
5	90.00	70 to 90	33	56	184
6	110.00	100 to 120	35	60	208
7	130.00	120 to 150	35	74	233
8	165.00	150 to 200	40	76	340
9	200.00	200 to 250	44	80	425
10	250.00	250 to 300	48	86	525
11	300.00	300 to 400	52	92	650
12	350.00	400 to 500	56	98	800

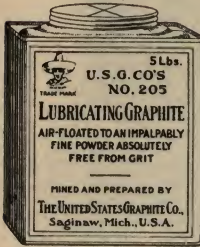
Oil

Best quality cylinder oil.....per gallon, .60
Best quality engine and machine oil.....per gallon, .40
Best quality gas engine oil.....per gallon, .60

Above prices are for barrel lots. For less quantities a charge will be made to cover cost of package.

No. 205 Lubricating Graphite

AN AIR FLOATED POWDER ABSOLUTELY FREE FROM GRIT



Superior to Flake Graphite for general lubricating purposes, and peculiarly suited for use in the Cylinders of Gas and Steam Engines, and other special uses.

A sure preventive and cure for hot pins, hot boxes, groaning cylinders, etc.

An ideal piston-rod lubricant when mixed with heavy cylinder oil.

Judiciously used will reduce oil and grease consumption at least one-fourth and in many cases one-third. Mix with oil in the proportion of about one teaspoonful graphite to the pint of oil.

1 lb. Screw Top Tin Cans, 36 cans in case.....	per can, .20
5 lb. Screw Top Tin Cans, 12 cans in case.....	per can, .90
10 lb. Screw Top Tin Cans, 6 cans in case.....	per can, 1.65

Dixon's American Graphite Perfect Lubricator

Dixon's water dressed dry foliated American Graphite is a little thin flake of graphite of extraordinary properties. It has unrivaled smoothness and endurance. Its superiority as a lubricant has been attested by all recent writers on friction. Its co-efficient of friction is very low.

Its enduring qualities are several times greater than those of any oil. Unlike either oil or grease, it is not affected by either heat, cold, steam, acids, etc., and acts equally well under the most varying conditions of temperature and moisture.

5 pound tin cans.....	each, 1.00
10 pound tin cans.....	each, 1.80



Mexican Graphite Paint



Made from pure Air Floated Mexican Graphite ground in linseed oil of the best quality. This paint is unaffected by smoke, water, brine, acids, alkali, extreme temperatures, steam, moisture, sulphur fumes, or, in fact, by any chemical or climatic condition.

The result is a paint unequaled for durability—a paint that, owing to its large covering power and reasonable price, costs less than other good paints—a paint that is inexpensive but not "cheap"—just the thing for structural iron and steel, steam pipes, coils, roofs, smoke stacks, boiler fronts, gas holders, vessels, fences, freight cars, water tanks, bridges, grain elevators, trolley poles, etc., etc.

Under ordinary weather conditions covering power per gallon is approximately 1000 square feet of smooth or new metal surfaces, 750 square feet on rough, scaly or rusty metal surfaces, and 400 square feet on dressed lumber or old painted wood.

1 gallon Tin Pails, 6 in case.....	per gallon, 1.80
5 gallon Kits.....	per gallon, 1.70
10 gallon Kits.....	per gallon, 1.65
One-half Barrels, about 30 gallons.....	per gallon, 1.55
Barrels, about 62 gallons.....	per gallon, 1.50

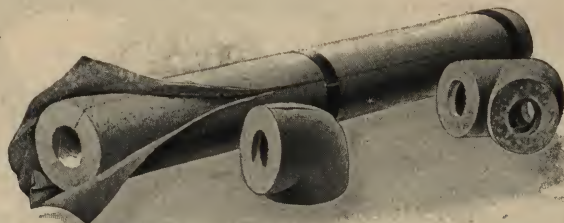
Cast Steel Cement

FOR PERFECTING IRON AND STEEL CASTINGS

It fills blow-holes, cracks, cold-shuts, and all other defects. It is not a temporary filler, but is permanent in adhesiveness, hardness and color, and a perfect match for the casting in every respect. It is easily applied, and will save many a casting.



Price per pound.....	.30
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Standard Prices of Sectional Pipe Covering and Fittings

Inside diameter of pipe.....inches	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$
Covering.....per foot	.22	.24	.27	.30	.33	.36	.40	.45	.50
Elbow Covers.....each	.30	.30	.30	.30	.30	.36	.42	.48	.54
Tee Covers.....each	.36	.36	.36	.36	.36	.42	.48	.54	.60
Cross Covers.....each	.48	.48	.48	.48	.48	.54	.60	.70	.80
Globe Valve Covers.....each	.54	.54	.54	.54	.54	.60	.78	.96	1.20
Inside diameter of pipe.....inches	4	$4\frac{1}{2}$	5	6	7	8	9	10	12
Covering.....per foot	.60	.65	.70	.80	1.00	1.10	1.20	1.30	1.85
Elbow Covers.....each	.60	.72	.90	1.30	1.80	2.40	3.00	3.60	-----
Tee Covers.....each	.75	.90	1.20	1.60	2.20	3.00	3.80	4.60	-----
Cross Covers.....each	.95	1.10	1.50	2.00	2.80	3.60	4.40	5.20	-----
Globe Valve Covers.....each	1.50	1.85	2.25	2.80	3.60	4.40	5.30	6.20	-----

Pipe Covering is made in several styles to suit various requirements. A special circular will be sent on application, fully describing the different kinds and stating work for which they are adapted.



Asbestos Retort Cement

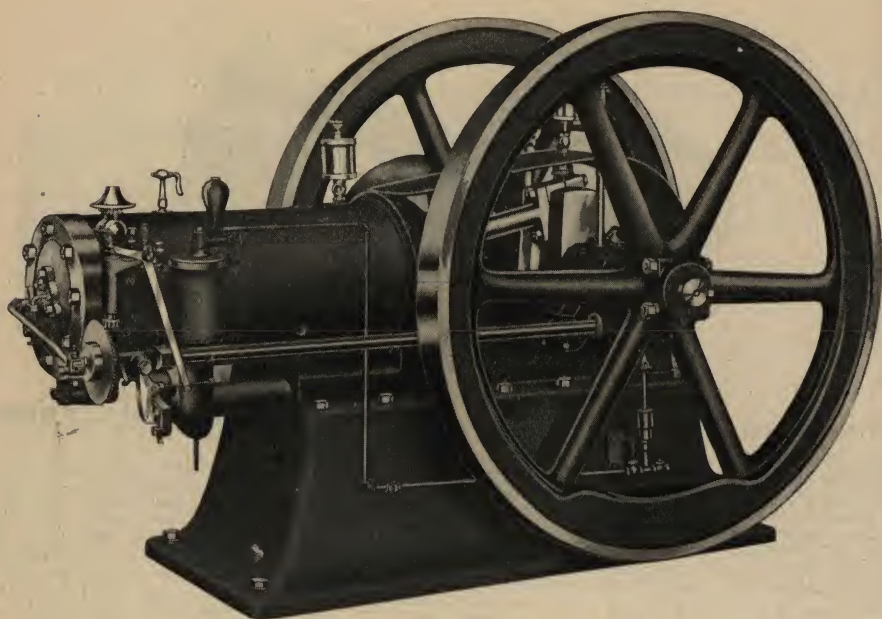
This cement is now in general use in gas and chemical works for repairing broken clay and iron retorts, pipes, etc., and for cementing fittings, connecting pipes, flange-joints, etc.; also for cementing joints in stone, wood, and metals. It is composed of asbestos and fire and acid-proof cementing materials, is prepared ready for use, can be easily applied with a trowel, and hardens rapidly. When subjected to intense heat it vitrifies without shrinking; it is not injured by nitric or sulphuric acids, petroleum oils, etc., and effectually prevents the escape of vapors.

Casks, 600 to 400 lbs.....	per lb.,	.04 $\frac{1}{2}$
Kegs, 300 to 100 lbs.....	per lb.,	.05
Pails, 50 and 25 lbs.....	per lb.,	.06
10-lb. cans.....	each,	1.00
5-lb. cans.....	each,	.60

Asbestos Cement Felting

This material is extensively used in plastic form, for covering boilers, heaters, breechings, drums, in fact all large surfaces. Its adaptability to all shapes, however irregular, combined with its con-conductivity and strength makes it deservedly popular. It is put up in bags of 100 lbs. A bag will cover about thirty square feet one inch thick. Price per bag..... 2.50





Ohio Stationary Gasoline Engines

Horse Power	Diameter of Fly Wheels	Weight of each Fly Wheel	Size of Exhaust Pipe	Water Pipe Connections	Floor Space	Width Over All	Length Over All	Diameter of Pulley	Face of Pulley	Speed	Weight
4	32	250	1½	1	15x28	30½	46	8	5	335	1000
6	34	300	1½	1	18x32	34	53	10	6	290	1400
8	40	440	2	1	22x38	41	61	15	8	265	1900
10	4½	540	2½	1½	23x45	42½	66	18	8	240	2600
12	48	600	2½	1½	24x54	45½	75	20	10	220	3000
15	50	700	3	1½	24x54	45½	76	20	10	220	3500
18	54	840	3	1½	28x58	51	86	22	10	210	4500
20	56	920	3	1½	28x64	53	91	24	10	200	5200
25	60	1150	3½	1½	28x64	53	94	28	12	190	6000
35	64	1900	4	1½	29x80	66	110	32	14	190	10000
40	66	2200	4½	1½	30x85	74	112	34	14	190	11500
50	68	2400	5	1½	33x96	77	121	36	14	180	13500

The regular equipment includes the engines fitted for the use of either gas or gasoline, electric igniter, all necessary oilers, wrenches, exhaust muffler and standard size tight pulley.

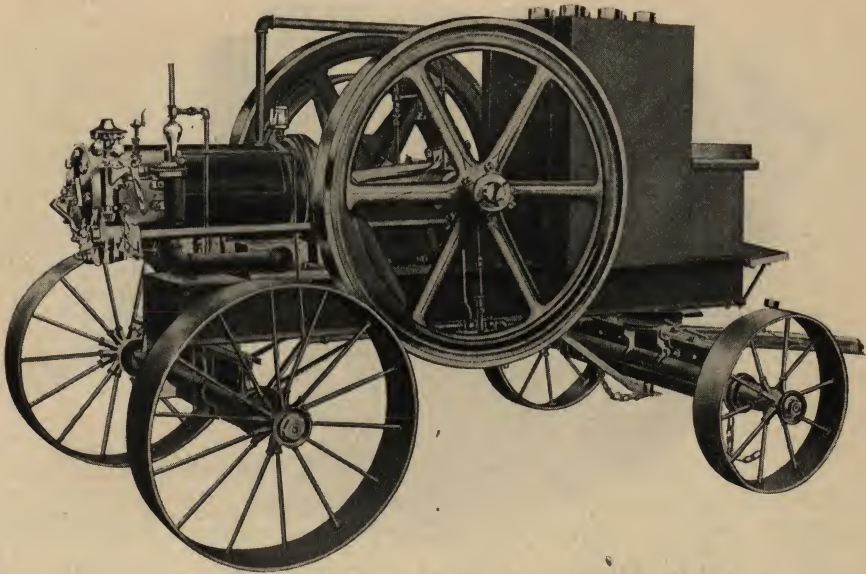
When engines are fitted for the use of gas, we furnish a gasometer. When fitted for the use of gasoline, we would furnish a 15 gallon gasoline tank with the 4, 6 and 8 H. P., a 60 gallon tank with the 10 to 25 H. P. inclusive, and a 100 gallon gasoline tank with the 35, 45 and 50 H. P. engines.

Ohio Special Electric Gasoline Engines

Horse Power	Diameter of Fly Wheels	Face of Fly Wheels	Weight of Each Fly Wheel	Diameter of Main Bearings	Speed	Weight
4	32	4½	425	2	400	1450
6	36	5	525	2½	335	1950
8	46	6	650	2½	325	2550
10	50	6	675	2¾	300	3080
12	50	6	825	3	250	3650
15	52	6	1115	3½	250	4650
18	56	7	1400	3½	225	6000
20	60	8	1800	4	215	6880
25	62	9	2660	4	200	8200
35						
40						
50						
	72	10	3800	6	180	15800

Other dimensions, also equipment, are the same as Ohio Stationary Gasoline Engines listed above.

SEND FOR COMPLETE CATALOG OF OHIO ENGINES.



Ohio Portable Gasoline Engines

Horse Power	Size of Front Truck Wheels	Size of Rear Truck Wheels	Height of Steel Channels	Length of Steel Channels	Diameter of Standard Friction Pulley	Face of Pulley	Speed R. P. M.	Weight of Outfit Complete
* 6	28 x 4	30 x 4	6	9'	18	8	300	2400
* 8	30 x 4	38 x 4	6	9'	24	8	275	2800
† 10	30 x 4	38 x 4	7	9'	28	8	240	3800
† 12	30 x 4	38 x 4	7	9'	30	8	230	4500
† 15	30 x 4	38 x 4	7	9'	32	8	230	4800
† 18	30 x 6	38 x 8	9	9'	36	8	210	6000
† 20	30 x 6	38 x 8	9	9'	38	8	210	6500

*Water tank; no circulating pump.

†Water circulating pump and tank.

The above engines are regularly furnished with friction clutch pulley as specified, spark coil, switch, wire, dry batteries and sparking magneto with governor pulley, complete, ready for operation, and mounted as shown.

Ohio Hopper Cooled Portable Gasoline Engines

Horse Power	Size of Front Truck Wheels	Size of Rear Truck Wheels	Height of Steel Channels	Length of Steel Channels	Diameter of Standard Pulley	Face of Pulley	Speed R. P. M.	Weight of Outfit Complete
4	28 x 3	34 x 3	5	6'	16	5	335	2100
6	28 x 3	34 x 3	5	6'	18	5	300	2500
8	28 x 3	34 x 3	5	6'	22	6	275	3200

These outfits consist of the Hopper Cooled Engines with equipment specified on page 406 mounted on trucks similar to those shown in cut above.

Gasoline Engine Pumping Outfits

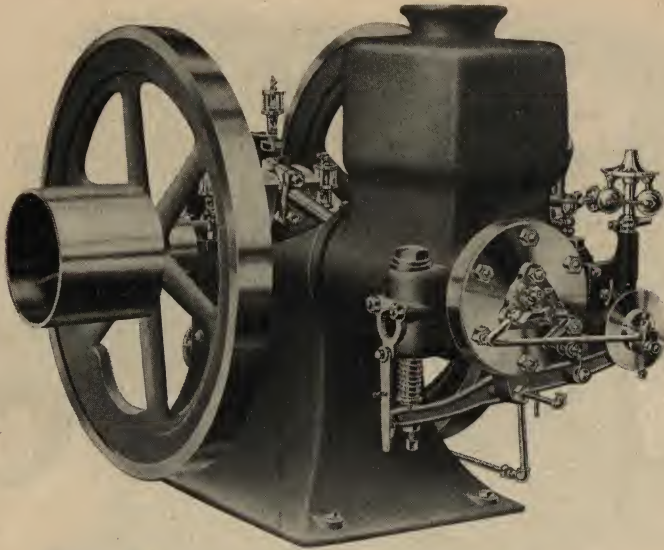
We are prepared to furnish various styles of pumps in connection with gasoline engines. Let us know the service required and we will send circulars.

Gasoline Hoists

A catalog showing both single and double drum hoists will be mailed on application.

Producer Gas Plants

If interested in this subject, we hope you will correspond with us.



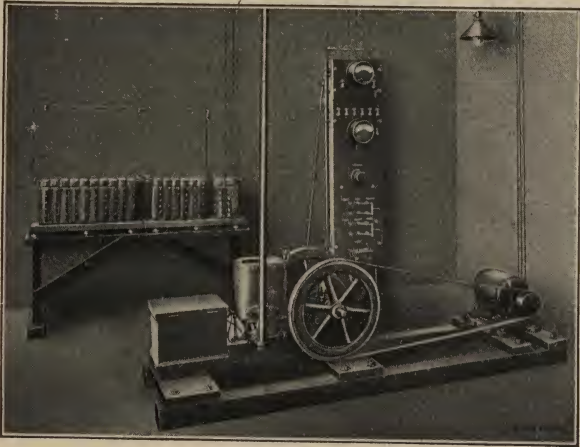
Ohio Hopper Cooled Gasoline Engines

Horse Power	Diameter of Fly Wheels	Weight of each Fly Wheel	Size of Exhaust Pipe	Floor Space	Width Over All	Length Over All	Diameter of Pulley	Face of Pulley	Speed	Weight
4	32	250	1½	15 x 28	30½	46	8	5	335	1250
6	34	300	1½	18 x 32	34	53	10	6	290	1650
8	40	440	2	22 x 38	41	61	15	8	265	2350

These engines are equipped with all necessary oilers, wrenches, electric igniter, fitted for the use of gasoline with gasoline tank in base of engine, hopper cylinder, standard size tight pulley and exhaust muffler.

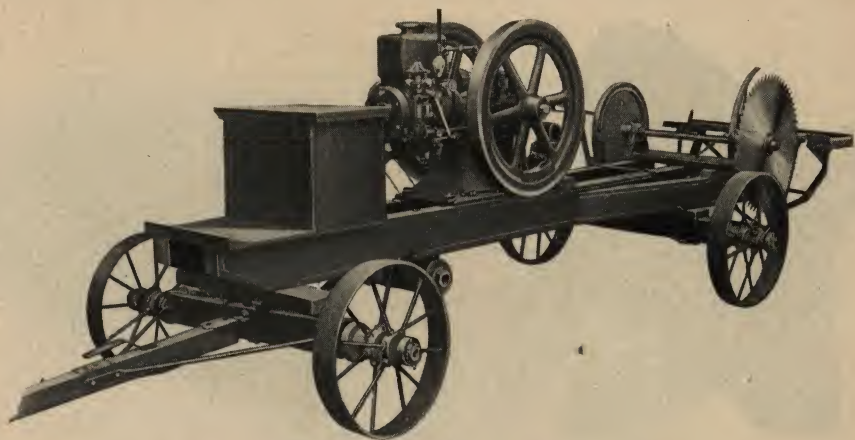
Michigan Hopper Cooled Gasoline Engines

These engines are the same as listed at bottom of page 407, except they have a hopper water jacket similar to that shown on engine above, and are mounted on a platform, thus making a portable self contained outfit convenient for general work. These changes add about 100 lbs. to the weight.



Electric Light Plants

We are prepared to furnish complete outfits of various sizes consisting of engine, generator, storage battery, switchboard, etc. Send for booklet "How to Light Your Home by Electricity."

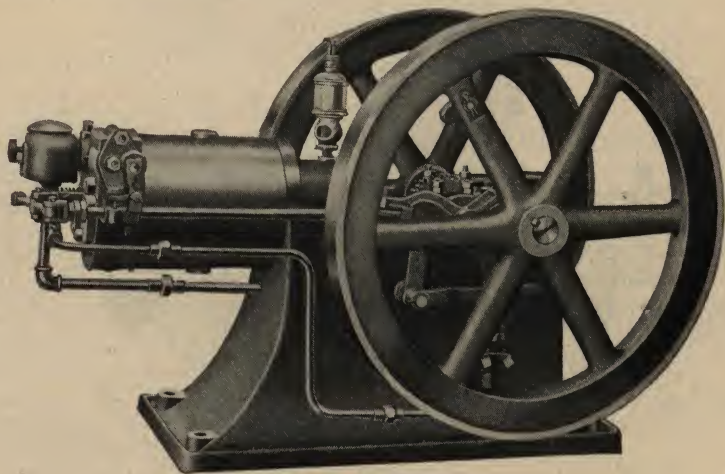


Ohio Portable Wood Saw Outfits

Horse Power	Size of Front Truck Wheels	Size of Rear Truck Wheels	Length of Truck	Size of Friction Pulley	Speed	Diam. of Saw	Weight
4	24 x 4	28 x 4	11'6"	16 x 5	350	26"	2300
6	24 x 4	28 x 4	11'6"	18 x 5	325	26"	2700
8	24 x 4	28 x 4	11'6"	22 x 5	270	26"	3400

The engines used with the above outfits are the same as shown on opposite page, mounted in connection with a tilting table wood saw, and furnished complete with belt, friction clutch pulley, spark coil, switch, wire, dry batteries and magneto, ready for operation.

The engines can be used for many other purposes than wood sawing.



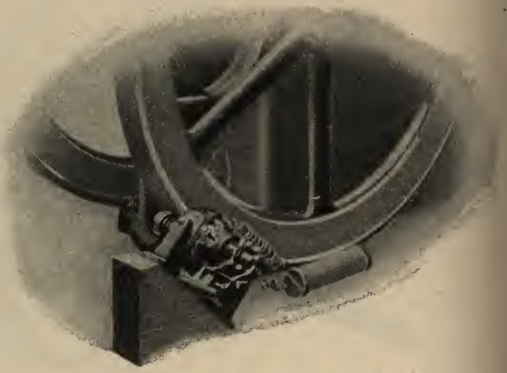
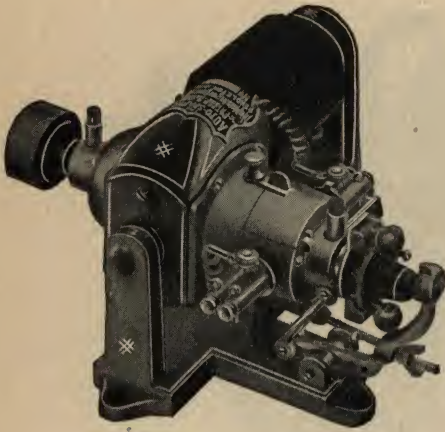
New Model No. 1

Michigan Gasoline Engines

	H. P.	Weight	Speed	Pulley	Floor Space
New Model No. 1.....	2	500	370-425	6 x 4	37 x 22
Michigan 3½ H. P.	3½	850	300-400	8 x 6	43 x 27

Each engine is furnished with battery, spark coil, muffler, oil can, wrench and directions for starting. Gasoline tank is in base of engine.

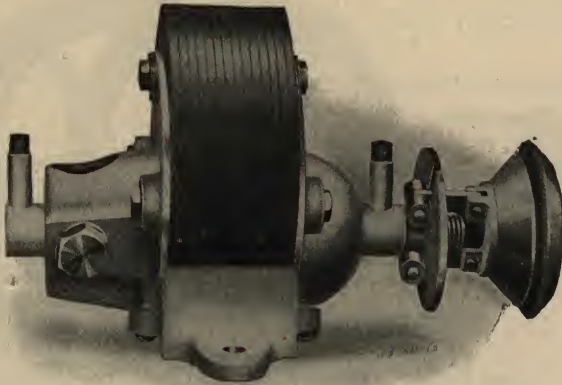
A catalogue fully describing these engines will be sent upon request. It shows them combined with pumps, pump jacks, etc.



Motsinger Auto-Sparker

For make and break or jump spark ignition. Also suitable for charging ignition storage batteries, lighting miniature lamps, etc. This is the original speed controlled friction dynamo. Its patented governor is positive and insures a uniform spark regardless of whether the engine is being turned over by hand or run at full speed. It requires less fuel, easier on contact points, and increases power of engine. This is the only speed controlled friction driven dynamo manufactured permitting of a square faced driving pulley, which is absolutely necessary for jump spark ignition, lighting lamps, charging storage batteries or furnishing current for igniting more than one engine. Thoroughly dust and weather proof.

Price----- 16.00

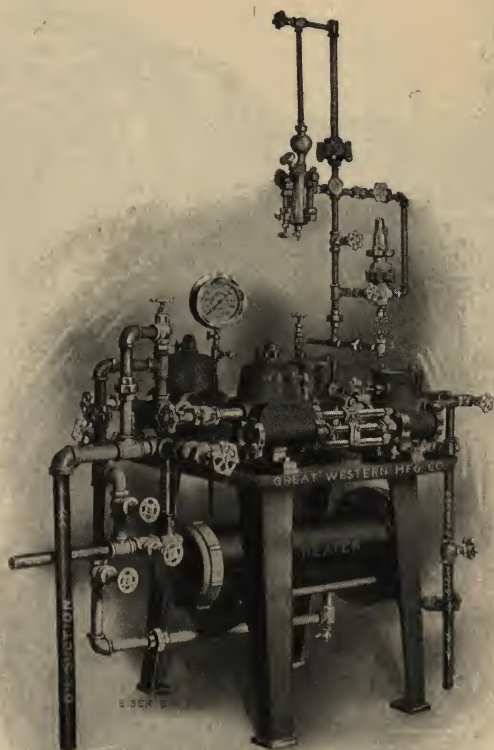


Motsinger D. C. Magneto

For make and break ignition only. Will run in either direction and operate with any make and break or primary coil. Its speed is automatically governed. Material and workmanship are the very best. Its efficiency is considerably greater than any other Magneto of the same weight and owing to staunch construction, ample bearings and comparatively low running speed, its life is made a long useful one.

Its starting speed is very low for a Magneto, and this taken in connection with the fact that it will run in either direction, makes it possible in many cases to kick the engine off against compression in starting.

Price----- 10.00



Great Western System of Fuel Oil Appliances

Our equipment consists of two Special Brass Fitted Fuel Oil Pumps, a Special Regulator, Double Connection Lubricator, Pressure Gauge, Relief Valve, Thermometer and Super-heating Drum, together with all valves and fittings necessary, all of which is assembled and mounted on a neat cast iron stand occupying but a limited space.

We use pumps having a long stroke and a valve and lever arrangement, insuring steady action, and, on account of size, 3"x2"x4", and the long stroke, they will deliver the required quantity of oil at a slow speed, and are therefore very sensitive to the control of the Regulator.

Our Super-heating Drum has longer and larger steam coils than others on the market, and the entire equipment is composed of the best articles for the purpose regardless of cost.

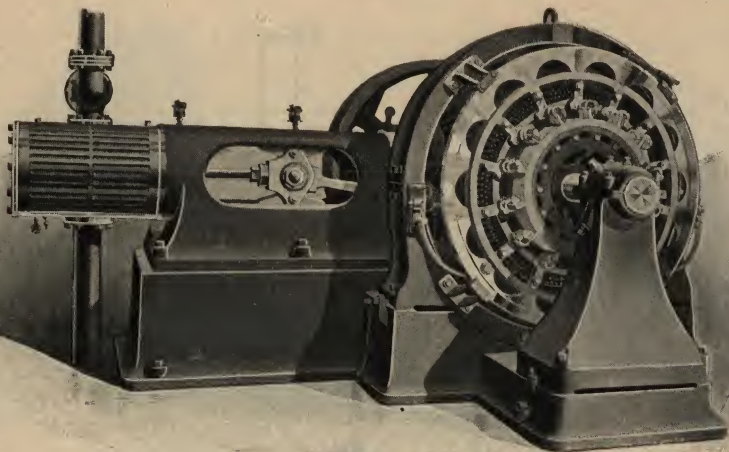
We are prepared to demonstrate that we have the best system yet offered for the economical and successful preparation of fuel oil for the Burners.

Our system does not include the burners nor the storage tank, but can be used with any standard burner on the market.

It is generally estimated that four barrels of fuel oil equals one ton of ordinary coal such as Cherokee Lump.

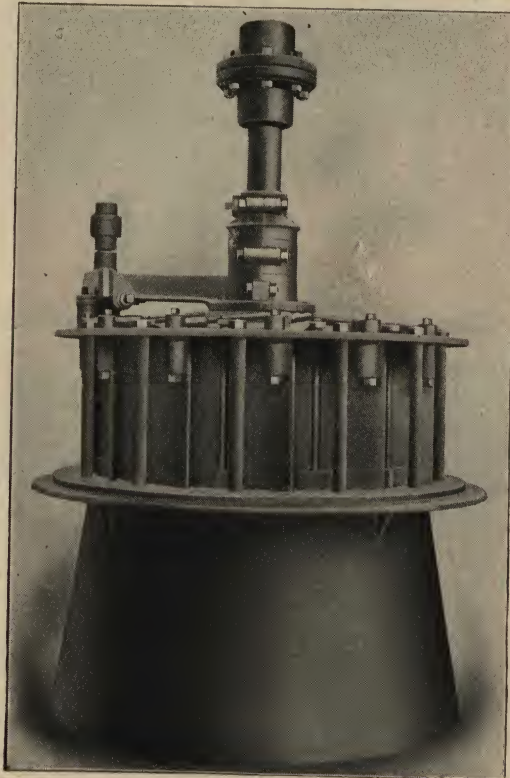
At present prices the balance is in favor of oil, when it is considered that the services of a fireman are practically unnecessary.

PRICES ON APPLICATION.



High Speed Engines

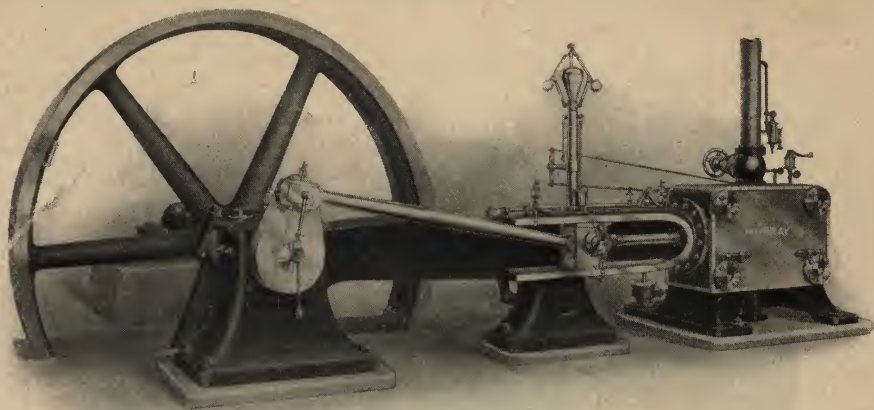
Catalogs and full particulars sent upon request.



Water Wheels

We are prepared to furnish any make or style of water wheels at manufacturers' prices.

Large illustrated pamphlets will be sent to any address, containing price list and valuable information relating to the management and erection of water mills and the measurement of water in streams.



Simple Girder Frame Murray Corliss Engines

Size		Revolutions	Indicated Horse Power—Non-Condensing					
Diameter of Cylinder	Stroke		90 Pounds Pressure		100 Pounds Pressure		110 Pounds Pressure	
			1-5 Cut-Off	1-4 Cut-Off	1-5 Cut-Off	1-4 Cut-Off	1-5 Cut-Off	1-4 Cut-Off
11"	24"	110	50	59	55	65	61	72
12"	30"	90	62	74	69	83	77	92
12"	36"	85	70	84	78	94	87	105
14"	36"	85	95	114	107	128	121	142
16"	36"	82	120	144	135	162	151	180
16"	42"	78	133	159	150	179	168	200
18"	36"	80	148	177	166	199	186	222
18"	42"	78	168	202	189	227	212	253
18"	48"	75	195	222	208	249	234	271
20"	42"	75	200	240	225	270	252	300
20"	48"	72	219	263	246	296	275	330
22"	42"	75	242	290	271	326	303	364
22"	48"	72	265	318	298	358	333	400
24"	48"	70	307	368	345	414	386	460
26"	48"	70	360	432	405	486	454	541
28"	48"	68	406	487	457	548	514	595
30"	48"	68	444	526	507	594	590	683
Add for condensing			25%	20.8%	21.9%	18.6%	19.7%	17%

Size		Pipes		Band Fly Wheel			Approximate Weight in Pounds of Engines Complete
Diameter of Cylinder	Stroke	Steam	Exhaust	Diameter	Face	Approximate Weight in Pounds	
11"	24"	4"	4½"	8'	14"	5,000	14,000
12"	30"	4"	4½"	8'	15"	5,500	16,000
12"	36"	4"	5"	9'	17"	6,500	18,000
14"	36"	4"	5"	10'	19"	9,000	22,000
16"	36"	4½"	6"	12'	22"	10,000	28,000
16"	42"	5"	6"	12'	24"	12,000	31,000
18"	36"	5"	6"	14'	24"	13,000	33,000
18"	42"	5"	6"	14'	26"	14,000	40,000
20"	42"	6"	7"	15'	26"	15,000	44,000
20"	48"	6"	7"	15'	29"	17,000	43,000
22"	42"	7"	8"	16'	31"	19,000	48,000
22"	48"	7"	8"	16'	36"	22,000	61,000
24"	48"	8"	9"	16'	38"	24,000	64,000
26"	48"	8"	10"	18'	42"	29,000	70,000
28"	48"	9"	12"	20'	44"	30,000	78,000
30"	48"	9"	12"	20'	44"	33,000	80,000

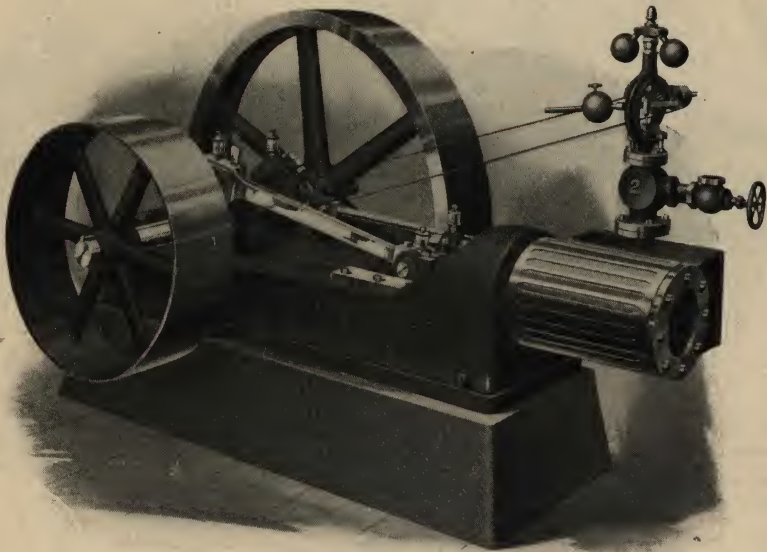
Note 1.—The speeds can be varied to suit particular requirements with corresponding changes in power.

Note 2.—The sizes and weights of wheels can be changed if desired.

Note 3.—The sizes of steam and exhaust pipes can be varied from the above when desired.

Note 4.—The builders reserve the right to vary from the above without giving notice, whenever in their opinion it is desirable.

With each complete engine we furnish a throttle valve, full set of oiling devices, engineer's wrenches and foundation bolts and washers.



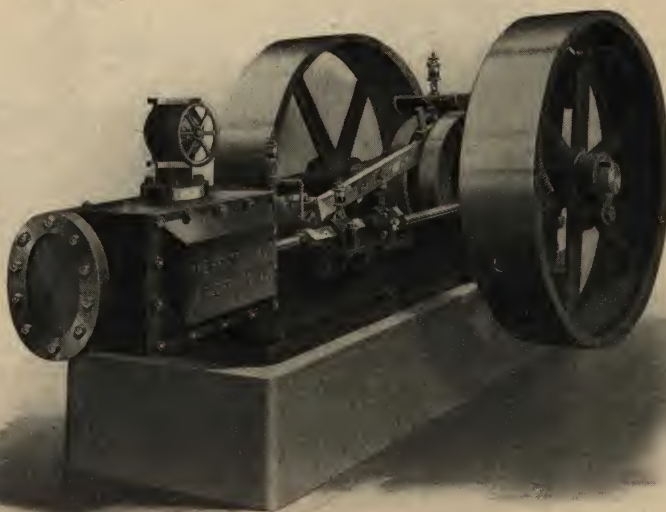
Frost Throttling Self-Contained Center-Crank Engines

Cylinder Dimensions		Horse Power		Band Wheel			Drive Pulley		Diam. of Main Shaft
Diam.	Stroke	Speed	35 lbs. M. E. P.	Diam.	Face	Weight	Diam.	Face	
6"	9"	275	12	36"	6"	275	20"	8"	2 1/8"
7"	9"	275	17	42"	6"	300	24"	8"	2 1/8"
8"	13"	250	29	54"	10"	500	30"	10"	3 1/8"
9"	13"	250	37	54"	10"	700	36"	10"	3 1/8"
10"	13"	250	45	54"	12"	900	36"	12"	3 1/8"
11"	14"	225	53	54"	14"	1500	36"	12"	4 1/8"
12"	14"	225	63	54"	14"	1700	36"	14"	4 1/8"

Cylinder Dimensions		Diam. of Steam Pipe	Diam. of Exhaust Pipe	Floor Space		Shipping Weights in Pounds	
Diam.	Stroke			Length	Width	Engine Complete	Foundation Bolts and Plates
6"	9"	1 1/2"	2"	75"	41"	1300	75
7"	9"	1 1/2"	2"	75"	41"	1600	75
8"	13"	2"	2 1/2"	109"	55"	3500	110
9"	13"	2"	3"	109"	55"	3800	120
10"	13"	2"	3"	109"	55"	4100	130
11"	14"	2 1/2"	3 1/2"	115"	68"	5700	180
12"	14"	3"	4"	115"	68"	6000	190

When Engine is ordered complete we furnish Band Wheel, Drive Pulley, Automatic Stop-Motion Governor, Governor Belt, Throttle Valve, Sight Feed Cylinder Lubricator with Connections, Oil Cups, Valves for Drain Pipes, Oil Can, Wrenches, and Foundation Plans.

Foundation Bolts and Plates, and anything else ordered, will be charged for extra.



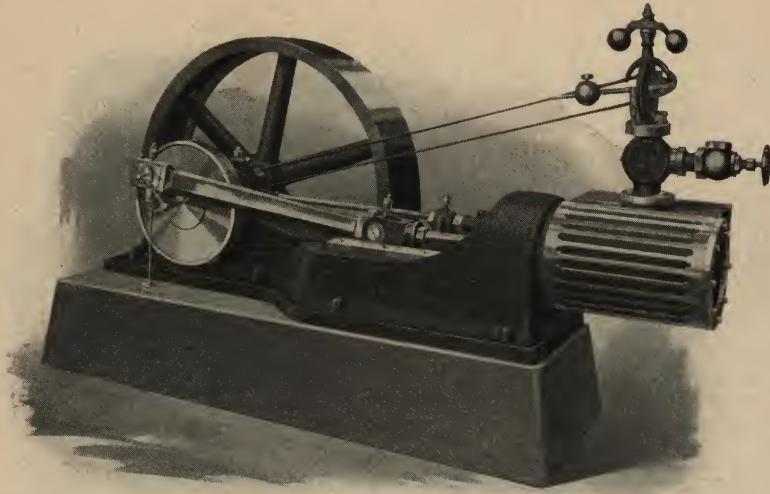
Frost Automatic Self-Contained Center-Crank Engines

Cylinder Dimensions		Horse Power $\frac{1}{2}$ Cut-Off		Band Wheels		Diam. of Main Shaft
Diam.	Stroke	Speed	40 lbs. M. E. P.	Diam.	Face	
8"	13"	285	38	54"	10"	3 $\frac{1}{8}$ "
9"	13"	285	48	54"	10"	3 $\frac{1}{8}$ "
10"	13"	285	59	54"	10"	3 $\frac{1}{8}$ "
11"	14"	275	74	54"	12"	4 $\frac{1}{8}$ "
12"	14"	275	88	54"	12"	4 $\frac{1}{8}$ "

Cylinder Dimensions		Diam. of Steam Pipe	Diam. of Exhaust Pipe	Floor Space		Shipping Weights in Pounds	
Diam.	Stroke			Length	Width	Engine Complete	Foundation Bolts and Plates
8"	13"	2"	3"	108"	56"	4300	110
9"	13"	2 $\frac{1}{2}$ "	3 $\frac{1}{2}$ "	108"	56"	4700	120
10"	13"	2 $\frac{3}{4}$ "	3 $\frac{3}{4}$ "	108"	56"	5000	130
11"	14"	3"	4"	115"	68"	6300	180
12"	14"	3"	4"	115"	68"	6900	190

When Engine is ordered complete we furnish Two Band Wheels, Shaft Governor, Throttle Valve, Special Crank Oiler, Wipe Oiler for Cross Head, Drip Oiler for Eccentric, Oil Cups, Sight Feed Cylinder Lubricator with connections, Valves for Drain Pipes, Oil Can, Wrenches, and Foundation Plans.

Foundation Bolts and Plates, and anything else ordered. will be charged for extra.



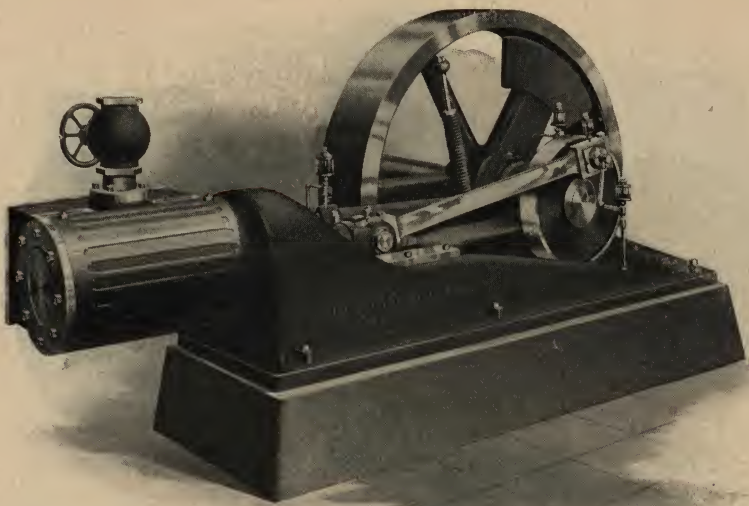
Frost Throttling Side-Crank Heavy-Duty Engines

Cylinder Dimensions		Horse Power		Band Wheel			Main Shaft	
Diam.	Stroke	Speed	35 lbs. M. E. P.	Diam.	Face	Weight	Diam.	Length from Center of Engine
8"	13"	225	26	54"	10"	500	3 1/8"	61"
9"	13"	225	33	54"	10"	700	3 1/8"	61"
10"	13"	225	41	54"	12"	900	3 1/8"	61"
10"	16"	200	44	60"	12"	1200	4 1/8"	73"
11"	16"	200	54	60"	14"	1400	4 1/8"	73"
12"	16"	200	64	60"	14"	1600	4 1/8"	73"
12"	18"	185	67	72"	16"	1800	5 1/8"	85 1/2"
13"	18"	185	78	72"	18"	2000	5 1/8"	85 1/2"
14"	18"	185	91	84"	18"	2200	5 1/8"	85 1/2"
16"	20"	175	125	96"	22"	3500	7 1/8"	98 1/2"
18"	20"	175	157	96"	24"	4500	7 1/8"	98 1/2"

Cylinder Dimensions		Diam. of Steam Pipe	Diam. of Exhaust Pipe	Floor Space		Shipping Weights in Pounds	
Diam.	Stroke			Length	Width	Engine Complete	Foundation Bolts and Plates
8"	13"	2"	2 1/2"	106"	80"	3300	140
9"	13"	2"	3"	106"	80"	3500	150
10"	13"	2"	3"	106"	80"	3700	180
10"	16"	2 1/2"	3 1/2"	127"	91"	5100	220
11"	16"	2 1/2"	3 1/2"	127"	91"	5400	230
12"	16"	3"	4"	127"	91"	5900	240
12"	18"	3"	4"	142"	112"	8100	460
13"	18"	3"	4"	142"	112"	8300	460
14"	18"	3 1/2"	4 1/2"	148"	112"	8500	470
16"	20"	4"	5"	174"	123"	13800	540
18"	20"	4 1/2"	6"	174"	123"	15500	550

With Engine ordered complete we furnish Outboard Bearing with adjustable Sole Plate, Band Wheel, Automatic Stop-Motion Governor, Governor Belt, Throttle Valve, Oil Cups, Centrifugal Oilier for Crank Pin, Sight Feed Cylinder Lubricator, Valves for Drain Pipes, Oil Can, Wrenches, and Foundation Plans.

Foundation Bolts and Plates, and anything else ordered, will be charged for extra.



Frost Automatic Side-Crank Heavy-Duty Engines

Cylinder Dimensions		Horse Power ½ Cut-Off		Band Wheel		Main Shaft	
Diam.	Stroke	Speed	40 lbs. M. E. P.	Diam.	Face	Diam	Length from Center of Engine
8"	13"	250	33	54"	10"	3½"	61"
9"	13"	250	42	54"	10"	3½"	61"
10"	13"	250	52	54"	12"	3½"	61"
10"	16"	225	57	60"	14"	4½"	73"
11"	16"	225	69	60"	14"	4½"	73"
12"	16"	225	82	60"	14"	4½"	73"
12"	18"	210	86	60"	16"	5½"	85½"
13"	18"	210	101	60"	16"	5½"	85½"
14"	18"	210	117	72"	18"	5½"	85½"
16"	20"	190	154	84"	22"	7½"	98½"
18"	20"	190	195	84"	24"	7½"	98½"

Cylinder Dimensions		Diam. of Steam Pipe	Diam. of Exhaust Pipe	Floor Space		Shipping Weights in Pounds	
Diam.	Stroke			Length	Width	Engine Complete	Foundation Bolts and Plates
8"	13"	2"	3"	106"	80"	3700	140
9"	13"	2½"	3½"	106"	80"	4000	150
10"	13"	2½"	3½"	106"	80"	4400	180
10"	16"	2½"	3½"	127"	91"	6000	220
11"	16"	3"	4"	127"	91"	6400	230
12"	16"	3"	4"	127"	91"	6800	240
12"	18"	3"	4"	136"	112"	9100	460
13"	18"	3½"	4½"	136"	112"	9500	460
14"	18"	3½"	4½"	142"	112"	9800	470
16"	20"	4"	5"	168"	123"	15100	540
18"	20"	4½"	6"	168"	123"	17000	550

With Engine ordered complete we furnish Outboard Bearing with Adjustable Sole Plate, Band Wheel with Shaft Governor, Throttle Valve, Wipe Oiler for Cross Head, Centrifugal Oiler for Crank Pin, Drip Oiler for Eccentric, Sight Feed Cylinder Lubricator with Connections, Oil Cups, Valves for Drain Pipes, Oil Can, Wrenches, and Foundation Plans.

Foundation Bolts and Plates, and anything else ordered, will be charged for extra.



Frost Standard Horizontal Tubular Boilers

FOR 100 POUNDS WORKING PRESSURE

Horse Power	15	20	25	30	35	40	45	50	60	70
Diameter of Shell.....inches	36	36	36	44	44	44	48	48	54	54
Length Outside of Heads.ft.	8	10	12	10	12	14	12	14	14	16
Thickness of Shell.....inches	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{2}$
Thickness of Heads.....inches	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{2}$
Diameter of Tubes, Stan.in.	3	3	3	3	3	3 $\frac{1}{2}$	3	3 $\frac{1}{2}$	3 $\frac{1}{2}$	4
Number of Tubes, Standard.	24	24	24	40	40	28	46	32	44	36
Diam. and No. of Tubes (3 $\frac{1}{2}$ in Sub., no change in price $\frac{1}{4}$ in	-----	-----	-----	-----	-----	-----	32	32	44	44
Diameter of Dome.....inches	18	18	18	22	22	22	24	24	28	28
Height of Dome.....inches	18	18	18	22	22	22	24	24	28	28
Width of Grates.....inches	36	36	36	42	42	42	48	48	54	54
Length of Grates.....inches	36	36	42	36	42	48	48	48	48	54
Diameter of Stack.....inches	16	16	16	18	18	18	24	24	26	26
Length of Stack.....feet	28	28	35	35	35	40	40	40	40	45
Thickness of Stack.....gauge	16	16	16	16	16	16	16	16	16	16
Size of Steam Opening.....	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	3	3	3	3 $\frac{1}{2}$
Size of Steam Gauge.....inches	5	5	5	5	5	5	5	5	6	6
Size of Blow-off Cock.....in.	2	2	2	2	2	2	2	2	2	2
Size of Check & Stop Valves in.	3	3	3	1	1	1	1	1	1 $\frac{1}{2}$	1 $\frac{1}{2}$
Size of Water Col. Cons. in.	1	1	1	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
Size of Whistle.....inches	3	3	3	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	4	4	4	4

WEIGHTS

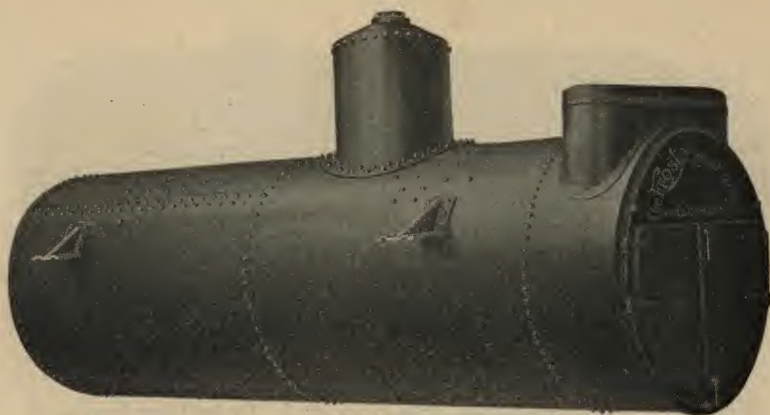
Horse Power	15	20	25	30	35	40	45	50	60	70
Boiler Only	2500	2850	3100	3900	4400	4700	5500	6000	7700	8800
Full Front, Castings & Trmgs	1250	1250	1300	2050	2100	2200	2400	2400	3100	3200
Stack and Guy Wire.....	450	450	550	600	600	650	800	800	900	1000
Complete Outfit	4200	4550	4950	6550	7100	7550	8700	9200	11700	13000
Boiler with Smoke Doors....	2625	3000	3225	4200	4700	5100	5800	6300	8100	9200
Half Front, Castings & Trmgs	900	900	950	1400	1500	1575	1800	1800	2100	2200
Stack and Guy Wire.....	450	450	550	600	600	650	800	800	900	1000
Complete Outfit	3975	4350	4725	6200	6800	7325	8400	8900	11100	12400

Boilers for 100 pounds working pressure are made of flange steel 60,000 pounds tensile strength, and are suitable for either Full-Flush or Half-Arch Fronts.

A Standard Complete Outfit consists of Boiler with Front and Doors, Grates and Bearers, Back Arch-Bars or Wall-Plate, Soot-Door and Frame, Smoke-Stack with Guy Wire, (six times length of stack) and the following fittings: Water-Column with Water-Gauge and Gauge-Cocks, Steam-Gauge, Safety-Valve, Check- and Stop-Valves, and Blow-off Valve.

Fire-Door Arches, Wall-Plates and Rollers, Buck Stays and Cross-Rods (four will be furnished unless otherwise specified), Diamond Anchors and Long Rods, Whistle and Valve, are extras and will not be furnished unless specified, and at an additional cost.

Loops will be substituted for Lugs without charge, but Suspension-Rods, Cross-Beams, and Columns are extra and only furnished when specified, and at an additional cost.



Frost Standard Horizontal Tubular Boilers

FOR 100 POUNDS WORKING PRESSURE

Horse Power	75	80	90	100	115	125	150	175	200	200	225
Diameter of shell.....Inches	60	60	60	66	66	72	72	78	78	84	84
Length Outside of Heads...feet	14	16	18	16	18	16	18	18	20	18	20
Thickness of Shell.....inches	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{7}{16}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$
Thickness of Heads.....inches	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{7}{16}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$
Diameter of Tubes, Stan...in.	$3\frac{1}{2}$	4	4	4	4	4	4	4	4	4	4
Number of Tubes, Standard...	54	44	44	54	54	70	70	84	84	92	92
Diam. & No. of Tubes... $3\frac{1}{2}$ in.	54	54	54	66	66	86	86	110	110	124	124
Sub., no change in price $\frac{1}{4}$ in.	44										
Diameter of Dome.....inches	30	30	30	32	32	36	36	36	36	36	36
Height of Dome.....inches	30	30	30	32	32	36	36	36	36	36	36
Width of Grates.....inches	60	60	60	66	66	72	72	78	78	84	84
Length of Grates.....inches	54	54	60	60	66	66	72	66	72	66	72
Diameter of Stack.....inches	28	28	28	32	32	36	36	38	38	42	42
Length of Stack.....feet	40	45	50	45	50	45	50	60	70	60	70
Thickness of Stack.....gauge	14	14	14	14	14	14	14	12	12	12	12
Size of Steam Opening .....in.	$3\frac{1}{2}$	4	4	5	5	5	5	6	6	6	6
Size of Steam Gauge .....in.	6	6	6	6	6	6	6	6	6	6	6
Size of Blow-off Cock .....in.	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$
Size of Check & Stop Valve...in.	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	2	2	2	2
Size of Water Col. Con. ....in.	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$
Size of Whistle .....in.	4	4	4	4	4	4	4	4	4	4	4

WEIGHTS

Horse Power	75	80	90	100	115	125	150	175	200	200	225
Boiler Only.....	9500	10700	11500	13100	14000	16500	18000	21300	23200	24400	26600
Full Front Castings & Trim'gs	3500	3500	3700	4800	5000	5200	5500	6000	6250	6300	6500
Stack and Guy Wire.....	1200	1400	1500	1600	1800	1800	2050	3300	3800	2500	4100
Complete Outfit.....	14200	15600	16700	19500	20800	23500	25550	30600	33250	34200	37200
Boiler with Smoke Doors.....	10000	11200	12000	13800	14750	17400	18900	22300	24200	25450	27650
Half Front, Castings & Trim'gs	2450	2450	2650	2900	3100	3400	3600	4000	4300	4400	4500
Stack and Guy Wire.....	1200	1400	1500	1600	1800	1800	2050	3300	3800	3500	4100
Complete Outfit.....	13650	15050	16150	18300	19650	22600	24550	29600	32300	33350	36250

Boilers for 100 pounds working pressure are made of flange steel 60,000 pounds tensile strength, and are suitable for either Full-Flush or Half-Arch Fronts.

A Standard Complete Outfit consists of Boiler with Front and Doors, Grates and Bearers, Back Arch-Bars or Wall-Plate, Soot-Door and Frame, Smoke-Stack with Guy Wire, (six times length of stack) and the following fittings: Water-Column with Water-Gauge and Gauge-Cocks, Steam-Gauge, Safety-Valve, Check- and Stop-Valves, and Blow-off Valve.

Fire-Door Arches, Wall-Plates and Rollers, Buck Stays and Cross-Rods (four will be furnished unless otherwise specified), Diamond Anchors and Long Rods, Whistle and Valve, are extras and will not be furnished unless specified, and at an additional cost.

Loops will be substituted for Lugs without charge, but Suspension-Rods, Cross-Beams, and Columns are extra and only furnished when specified, and at an additional cost.



Frost High Pressure Horizontal Tubular Boilers

FOR 125 POUNDS WORKING PRESSURE

Horse Power	45	50	60	70	75	80	90
Diameter of Shell.....inches	48	48	54	54	60	60	60
Length Outside of Heads.....feet	12	14	14	16	14	16	18
Thickness of Shell.....inches	$\frac{5}{16}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$
Thickness of Heads.....inches	$\frac{7}{16}$	$\frac{7}{16}$	$\frac{7}{16}$	$\frac{7}{16}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$
Diam. of Tubes, Standard.....inches	3	3 $\frac{1}{2}$	3 $\frac{1}{2}$	4	3 $\frac{1}{2}$	4	4
Number of Tubes, Standard.....	46	32	44	36	54	44	44
Diam. and Number of Tubes.....} 3 $\frac{1}{2}$ in.	32			44		54	54
Substituted, no change in price } 4 in.	26	26	36		44		
Width of Grates.....inches	48	48	54	54	60	60	60
Length of Grates.....inches	48	48	48	54	54	54	60
Diameter of Stack.....inches	24	24	26	26	28	28	28
Length of Stack.....feet	40	40	40	45	40	45	50
Thickness of Stack.....gauge	16	16	16	16	14	14	14
Size of Steam Supply Opening.....in.	3	3	3	3 $\frac{1}{2}$	3 $\frac{1}{2}$	4	4
Size of Pop Safety Valve.....in.	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	3 $\frac{1}{2}$
Size of Steam Gauge.....in.	6	6	8 $\frac{1}{2}$	8 $\frac{1}{2}$	8 $\frac{1}{2}$	8 $\frac{1}{2}$	8 $\frac{1}{2}$
Size of Blow-off Valve.....in.	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$
Size of Check and Stop Valves.....in.	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
Size of Water Col. Connections.....in.	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
Size of Internal Feed Pipe.....in.	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
Size of Whistle.....in.	4	4	4	4	4	4	4

WEIGHTS

Horse Power	45	50	60	70	75	80	90
Boiler Only	6000	6500	8100	9000	10100	11400	12300
Full Front Castings and Trimmings.....	2400	2400	3100	3200	3500	3500	3700
Stack and Guy Wire.....	800	800	900	1000	1200	1400	1500
Complete Outfit	9200	9700	12100	13200	14800	16300	17500
Boiler with Smoke Doors.....	6300	6800	8500	9400	10600	11900	12800
Half Front Castings and Trimmings.....	1800	1800	2100	2200	2450	2450	2650
Stack and Guy Wire.....	800	800	900	1000	1200	1400	1500
Complete Outfit	8900	9400	11500	12600	14250	15750	16950

Longitudinal Seams are butt-joint, triple-riveted with double covering-strips.

Standard Specifications, flange steel 60,000 pounds tensile strength in shell and heads.

Fire-Box Steel 55,000 pounds tensile strength will be furnished in shells when specified, at an additional cost.

Independent Dome, Dry Pipe or Baffle Plate will be furnished when specified, at an additional cost.

A Standard Complete Outfit consists of Boiler with Front and Doors, Grates and Bearers, Back Arch-Bars or Wall-Plate, Soot-Door and Frame, Smoke-Stack with Guy Wire, (six times length of stack) and the following fittings: Water-Column with Water-Gauge and Gauge-Cocks, Steam-Gauge, Safety-Valve, Check- and Stop-Valves and Blow-off Valve.

Fire-Door Arches, Wall-Plates and Rollers, Buck Stays and Cross-Rods (four will be furnished unless otherwise specified), Diamond Anchors and Long Rods, Whistle and Valve, are extras and will not be furnished unless specified, and at an additional cost.

Loops will be substituted for Lugs without charge, but Suspension-Rods, Cross-Beams, and Columns are extra and only furnished when specified, and at an additional cost.



Frost High Pressure Horizontal Tubular Boilers

FOR 125 POUNDS WORKING PRESSURE

Horse Power	100	115	125	150	175	200	200	225
Diameter of Shell.....inches.	66	66	72	72	78	78	84	84
Length Outside of Heads.....feet.	16	18	16	18	18	20	18	20
Thickness of Shell.....inches.	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
Thickness of Heads.....inches.	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
Diam. of Tubes, Standard.....inches.	4	4	4	4	4	4	4	4
Number of Tubes, Standard.....	54	54	70	70	84	84	92	92
Diam. and Number of Tubes } 3 $\frac{1}{2}$ in.	66	66	86	86	110	110	124	124
Substituted, no change in price } 4 in.								
Width of Grates.....inches.	66	66	72	72	78	78	84	84
Length of Grates.....inches.	60	66	66	72	66	72	66	72
Diameter of Stack.....Inches.	32	32	36	36	38	38	42	42
Length of Stack.....feet.	45	50	45	50	60	70	60	70
Thickness of Stack.....gauge.	14	14	14	14	12	12	12	12
Size of Steam Supply Opening.....in.	5	5	5	5	6	6	6	6
Size of Pop Safety Valve.....in.	3 $\frac{1}{2}$	3 $\frac{1}{2}$	4	4	4 $\frac{1}{2}$	5	5	5
Size of Steam Gauge.....in.	8 $\frac{3}{4}$	8 $\frac{3}{4}$	8 $\frac{3}{4}$	8 $\frac{3}{4}$	8 $\frac{3}{4}$	8 $\frac{3}{4}$	8 $\frac{3}{4}$	8 $\frac{3}{4}$
Size of Blow-off Valve.....in.	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$
Size of Check and Stop Valves.....in.	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	2	2	2
Size of Water Column Connections.....in.	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
Size of Internal Feed Pipe.....in.	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	2	2	2
Size of Whistle.....in.	4	4	4	4	4	4	4	4

WEIGHTS

Horse Power	100	115	125	150	175	200	200	225
Boiler Only	13500	14800	16700	18200	21300	23500	24200	26800
Full Front Castings and Trimmings	4800	5000	5200	5500	6000	6250	6300	6500
Stack and Guy Wire	1600	1800	1800	2050	3300	3500	3500	4100
Complete Outfit	19900	21600	23700	26750	30600	33550	34000	37400
Boiler with Smoke Doors	14200	15500	17600	19100	22300	24500	25250	27850
Half Front Castings and Trimmings	2900	3100	3400	3600	4000	4300	4400	4500
Stack and Guy Wire	1600	1800	1800	2050	3300	3500	3500	4100
Complete Outfit	18700	20400	22800	25750	29600	32600	33150	36450

Longitudinal Seams are butt-joint, triple-riveted with double covering strips.

Standard Specifications, flange steel 60,000 pounds tensile strength in shell and heads.

Fire-Box Steel 55,000 pounds tensile strength will be furnished in shells when specified at an additional cost.

Independent Dome, Dry Pipe or Baffle Plate will be furnished when specified at additional cost.

A Standard Complete Outfit consists of Boiler with Front and Doors, Grates and Bearers, Back Arch-Bars or Wall-Plate, Soot-Door and Frame, Smoke-Stack with Guy Wire, (six times length of stack) and the following fittings: Water-Column with Water-Gauge and Gauge-Cocks, Steam-Gauge, Safety-Valve, Check- and Stop-Valves and Blow-off Valve.

Fire-Door Arches, Wall-Plates and Rollers, Buck Stays and Cross-Rods (four will be furnished unless otherwise specified), Diamond Anchors and Long Rods, Whistle and Valve, are extras and will not be furnished unless specified, and at an additional cost.

Loops will be substituted for Lugs without charge, but Suspension-Rods, Cross-Beams, and Columns are extra and only furnished when specified, and at an additional cost.



Frost High Pressure Horizontal Tubular Boilers

FOR 150 POUNDS WORKING PRESSURE

Horse Power	45	50	60	70	75	80	90
Diameter of Shell.....inches.	48	48	54	54	60	60	60
Length outside of Heads.....feet.	12	14	14	16	14	16	18
Thickness of Shell.....inches.	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$
Thickness of Heads.....inches.	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$
Diameter of Tubes, Standard.....in.	3	$3\frac{1}{2}$	$3\frac{1}{2}$	4	$3\frac{1}{2}$	4	4
Number of Tubes, Standard.....	46	32	44	36	54	44	54
Diam. and Number of Tubes..... } $3\frac{1}{2}$ in.	32	-----	-----	44	-----	54	54
Substituted, no change in price } 4 in.	26	26	36	-----	44	-----	-----
Width of Grates.....inches.	48	48	54	54	60	60	60
Length of Grates.....inches.	48	48	48	54	54	54	60
Diameter of Stack.....inches.	24	24	26	26	28	28	28
Length of Stack.....feet.	40	40	40	45	40	45	50
Thickness of Stack.....gauge.	16	16	16	16	14	14	14
Size of Steam Supply Opening.....in.	3	3	3	$3\frac{1}{2}$	$3\frac{1}{2}$	4	4
Size of Pop Safety Valve.....in.	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	3	$3\frac{1}{2}$	$3\frac{1}{2}$
Size of Steam Gauge.....in.	6	6	$8\frac{1}{2}$	$8\frac{1}{2}$	$8\frac{1}{2}$	$8\frac{1}{2}$	$8\frac{1}{2}$
Size of Blow-off Valve.....in.	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$
Size of Check and Stop Valves.....in.	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$
Size of Water Column Connections.....in.	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$
Size of Internal Feed Pipe.....in.	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$
Size of Whistle.....in.	4	4	4	4	4	4	4

WEIGHTS

Horse Power	45	50	60	70	75	80	90
Boiler Only.....	6400	6900	8800	9900	10600	12000	13000
Full Front Castings and Trimmings.....	2400	2400	3100	3200	3500	3500	3700
Stack and Guy Wire.....	800	800	900	1000	1200	1400	1500
Complete Outfit.....	9600	10100	12800	14100	15300	16900	18200
Boiler with Smoke Doors.....	6700	7200	9200	10300	11100	12500	13500
Half Front Castings and Trimmings.....	1800	1800	2100	2200	2450	2450	2650
Stack and Guy Wire.....	800	800	900	1000	1200	1400	1500
Complete Outfit.....	9300	9800	12200	13500	14700	16350	17650

Longitudinal Seams are butt-joint triple-riveted with double covering-strips on Boilers up to and including 60 inches in diameter. Boilers over 60 inches are quadruple riveted.

Standard Specifications, flange steel 60,000 pounds tensile strength in shell and heads.

Fire-Box Steel 55,000 pounds tensile strength will be furnished in shells when specified, at an additional cost.

Independent Dome, Dry Pipe or Baffle Plate will be furnished when specified, at an additional cost.

A Standard Complete Outfit consists of Boiler with Front and Doors, Grates and Bearers, Back Arch-Bars or Wall-Plate, Soot-Door and Frame, Smoke-Stack with Guy Wire, (six times length of stack) and the following fittings: Water-Column with Water Gauge and Gauge-Cocks, Steam-Gauge, Safety-Valve, Check- and Stop-Valves and Blow-off Valve.

Fire-Door Arches, Wall-Plates and Rollers, Buck Stays and Cross-Rods (four will be furnished unless otherwise specified), Diamond Anchors and Long Rods, Whistle and Valve, are extras and will not be furnished unless specified, and at an additional cost.

Loops will be substituted for Lugs without charge, but Suspension-Rods, Cross-Beams, and Columns are extra and only furnished when specified, and at an additional cost.



Frost High Pressure Horizontal Tubular Boilers

FOR 150 POUNDS WORKING PRESSURE

Horse Power	100	115	125	150	175	200	200	225
Diameter of Shell.....inches.	66	66	72	72	78	78	84	84
Length outside of Heads.....feet.	16	18	16	18	18	20	18	20
Thickness of Shell.....inches.	$1\frac{1}{8}$	$1\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	$1\frac{1}{8}$	$1\frac{1}{8}$
Thickness of Heads.....inches.	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$1\frac{1}{8}$	$1\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{2}$
Diameter of Tubes, Standard.....in.	4	4	4	4	4	4	4	4
Number of Tubes, Standard.....	54	54	70	70	84	84	92	92
Diam. and Number of Tubes..... } $3\frac{1}{2}$ in.	66	66	86	86	110	110	124	124
Substituted, no change in price } 4 in.								
Width of Grates.....inches.	66	66	72	72	78	78	84	84
Length of Grates.....inches.	60	66	66	72	66	72	66	72
Diameter of Stack.....inches.	32	32	36	36	38	38	42	42
Length of Stack.....feet.	45	50	45	50	60	70	60	70
Thickness of Stack.....gauge.	14	14	14	14	12	12	12	12
Size of Steam Supply Opening.....in.	5	5	5	5	6	6	6	6
Size of Pop Safety Valve.....in.	$3\frac{1}{2}$	$3\frac{1}{2}$	4	4	$4\frac{1}{2}$	5	5	5
Size of Steam Gauge.....in.	$8\frac{1}{2}$	$8\frac{1}{2}$	$8\frac{1}{2}$	$8\frac{1}{2}$	$8\frac{1}{2}$	$8\frac{1}{2}$	$8\frac{1}{2}$	$8\frac{1}{2}$
Size of Blow-off Valve.....in.	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$
Size of Check and Stop Valves.....in.	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	2	2	2
Size of Water Column Connections.....in.	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$
Size of Internal Feed Pipe.....in.	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	2	2	2
Size of Whistle.....in.	4	4	4	4	4	4	4	4

WEIGHTS

Horse Power	100	115	125	150	175	200	200	225
Boiler Only.....	14200	15400	18100	19600	23000	25800	26000	29000
Full Front Castings and Trimmings.....	4800	5000	5200	5500	6000	6250	6300	6500
Stack and Guy Wire.....	1600	1800	1800	2050	3300	3800	3500	4100
Complete Outfit.....	20600	22200	25100	27150	32300	35850	35800	39600
Boiler with Smoke Doors.....	14900	16100	19000	20500	24000	26800	27050	30050
Half Front Castings and Trimmings.....	2900	3100	3400	3600	4000	4300	4400	4500
Stack and Guy Wire.....	1600	1800	1800	2050	3300	3800	3500	4100
Complete Outfit.....	19400	21000	24200	26150	31300	34900	34950	38650

Longitudinal Seams are butt-joint, triple-riveted with double covering-strips on Boilers up to and including 60 inches in diameter. Boilers over 60 inches are quadruple riveted.

Standard Specifications, flange steel 60,000 pounds tensile strength in shell and heads.

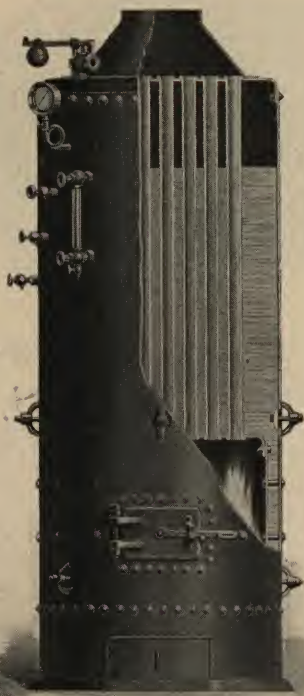
Fire-Box Steel 55,000 pounds tensile strength will be furnished in shells when specified, at an additional cost.

Independent Dome, Dry Pipe or Baffle Plate will be furnished when specified, at an additional cost.

A Standard Complete Outfit consists of Boiler with Front and Doors, Grates and Bearers, Back Arch-Bars or Wall-Plate, Soot-Door and Frame, Smoke-Stack with Guy Wire, (six times length of stack) and the following fittings: Water-Column with Water-Gauge and Gauge-Cocks, Steam-Gauge, Safety-Valve, Check- and Stop-Valves and Blow-off Valve.

Fire-Door Arches, Wall-Plates and Rollers, Buck Stays and Cross-Rods (four will be furnished unless otherwise specified), Diamond Anchors and Long Rods, Whistle and Valve, are extras and will not be furnished unless specified, and at an additional cost.

Loops will be substituted for Lugs without charge, but Suspension-Rods, Cross-Beams, and Columns are extra and only furnished when specified, and at an additional cost.



Frost Vertical Tubular Boilers

WITH FULL LENGTH TUBES

This type of Boiler is made throughout of Open-Hearth Homogeneous Flange Steel, 60,000 pounds tensile strength per square inch of section.

All Boilers 36 inches and over in diameter have vertical seams double riveted.

Fire-Boxes of Boilers 48 inches and over in diameter are fitted with stay-bolts.

All Boilers have shells extended forming ash-pit, and are furnished with cast-iron flat base-plates.

Boilers 36 inches and under in diameter have two hand-holes at bottom of water-leg.

Boilers over 36 inches in diameter have three hand-holes at bottom of water-leg.

All Boilers have four hand-holes over crown sheet.

Before shipment each Boiler is tested with steam and subjected to a hydrostatic test of 150 pounds pressure to the square inch.

When Boiler without fixtures or fittings is ordered we include Furnace Door, Hand-Holes and C. I. Base-Plate only.

When ordered complete we include Base-Plate, Grates, Water-Gauge, Steam-Gauge, Gauge-Cocks, Safety-Valve, Check- and Stop-Valves, Blow-off Valve.

Stack and Injector with connecting pipes will be furnished, when specified, at an additional cost.

Horse Power	Shell			Fire-Box		Thickness of Heads	Tubes		
	Diam.	Height	Thickness	Height	Thickness		No.	Diam.	Length
5	24"	60"	3/4"	24"	1"	3/8"	28	2"	36"
8	30"	60"	3/4"	27"	1"	3/8"	48	2"	33"
10	30"	72"	3/4"	27"	1"	3/8"	48	2"	45"
12	30"	84"	3/4"	27"	1"	3/8"	48	2"	57"
15	36"	75"	3/4"	27"	1 1/8"	3/8"	68	2"	48"
18	36"	84"	3/4"	27"	1 1/8"	3/8"	68	2"	57"
20	36"	93"	3/4"	27"	1 1/8"	3/8"	68	2"	66"
25	42"	87"	3/4"	27"	1 1/8"	3/8"	92	2"	60"
30	42"	93"	3/4"	27"	1 1/8"	3/8"	92	2"	66"
35	42"	105"	3/4"	27"	1 1/8"	3/8"	92	2"	66"
40	48"	96"	3/4"	30"	1 1/8"	3/8"	128	2"	78"
45	48"	108"	3/4"	30"	1 1/8"	3/8"	128	2"	78"
50	48"	120"	3/4"	30"	1 1/8"	3/8"	128	2"	90"

Horse Power	Lever Safety Valve	Check and Stop Valve	Blow-Off Cock	Stack		Shipping Weights		
				Diameter	Gauge	Boiler	Boiler and Fixtures	Stack per Foot
5	1"	1 1/2"	1"	12"	16	900	1200	11
8	1 1/4"	1 3/4"	1"	14"	16	1200	1500	12
10	1 1/2"	2"	1"	14"	16	1400	1750	12
12	1 3/4"	2 1/4"	1"	14"	16	1600	1950	12
15	1 3/4"	2 3/4"	1"	16"	16	2000	2350	14
18	1 3/4"	2 3/4"	1"	16"	16	2100	2450	14
20	2"	3"	1"	16"	16	2350	2700	14
25	2"	3 1/4"	1 1/4"	18"	16	2800	3350	15
30	2 1/4"	3 1/4"	1 1/4"	18"	16	3200	3700	15
35	2 1/4"	3 1/4"	1 1/4"	18"	16	3500	4100	15
40	3"	4"	1 1/2"	22"	16	4000	4700	19
45	3"	4"	1 1/2"	22"	16	4300	5000	19
50	3"	4"	1 1/2"	22"	16	4700	5400	19



Frost Vertical Tubular Boilers WITH SUBMERGED TUBES

This type of Boiler is made throughout of Open-Hearth Homogeneous Flange Steel, 60,000 pounds tensile strength per square inch of section.

All Boilers 36 inches and over in diameter have vertical seams double riveted.

Fire-Boxes of Boilers 48 inches and over in diameter are fitted with stay-bolts.

All Boilers have shells extended forming ash-pit, and are furnished with cast-iron flat base-plates.

Boilers 36 inches and under in diameter have two hand-holes at bottom of water-leg.

Boilers over 36 inches in diameter have three hand-holes at bottom of water-leg.

All Boilers have four hand-holes over crown-sheet.

Before shipment each Boiler is tested with steam and subjected to a hydrostatic test of 150 pounds pressure to the square inch.

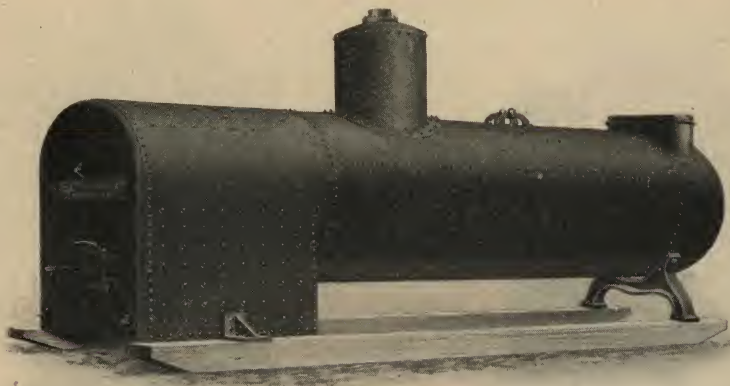
When Boiler without fixtures or fittings is ordered we include Furnace Door, Hand-Holes and C. I. Base-Plate only.

When ordered complete we include Base-Plate, Grates, Water-Gauge, Steam-Gauge, Gauge-Cocks, Safety-Valve, Check- and Stop-Valves, Blow-off Valve.

Stack and Injector with connecting pipes will be furnished, when specified, at an additional cost.

Horse Power	Shell			Fire-Box		Thickness of Heads	Tubes		
	Diam.	Height	Thickness	Height	Thickness		No.	Diam.	Length
5	24"	60"	1"	24"	3"	3"	31	2"	18"
8	30"	72"	1"	27"	3"	3"	48	2"	27"
10	30"	78"	1"	27"	3"	3"	48	2"	33"
12	30"	84"	1"	27"	3"	3"	48	2"	39"
15	36"	84"	1"	27"	3"	3"	68	2"	39"
18	36"	90"	1"	27"	3"	3"	68	2"	45"
20	42"	87"	1"	27"	3"	3"	92	2"	42"
25	42"	93"	1"	27"	3"	3"	92	2"	48"
30	48"	102"	3/4"	30"	3"	3"	128	2"	45"
35	48"	108"	3/4"	30"	3"	3"	128	2"	51"
40	48"	114"	3/4"	30"	3"	3"	128	2"	57"
45	48"	120"	3/4"	30"	3"	3"	128	2"	63"
50	54"	114"	1"	30"	3"	3"	174	2"	57"

Horse Power	Lever Safety Valve	Check and Stop Valve	Blow-Off Cock	Stack		Shipping Weights		
				Diameter	Gauge	Boiler	Boiler and Fixtures	Stack per Foot
5	1"	3/4"	1"	12"	16	1000	1225	11
8	1 1/4"	3/4"	1"	14"	16	1450	1775	12
10	1 1/4"	3/4"	1"	14"	16	1550	1875	12
12	1 1/2"	3/4"	1"	14"	16	1700	2025	12
15	1 1/2"	3/4"	1"	16"	16	2150	2450	14
18	1 1/2"	3/4"	1"	16"	16	2300	2600	14
20	2"	3/4"	1"	18"	16	2700	3175	15
25	2"	3/4"	1 1/4"	18"	16	3000	3475	15
30	2"	3/4"	1 1/4"	22"	16	4200	4800	19
35	2 1/2"	1"	1 1/4"	22"	16	4500	5100	19
40	3"	1"	1 1/4"	22"	16	4800	5400	19
45	3"	1"	1 1/4"	22"	16	4950	5550	19
50	3"	1"	1 1/4"	26"	16	5500	6600	22



Frost Portable Locomotive Boilers

WATER FRONT, OPEN BOTTOM

FOR 100 POUNDS WORKING PRESSURE

Horse Power	Shell		Fire-Box			Thickness of Heads	Tubes		
	Diam.	Thickness	Length	Width	Thickness		No.	Diam.	Length
15	32"	$\frac{3}{8}$ "	44"	26"	$\frac{5}{16}$ "	$\frac{3}{16}$ "	26	3"	72"
20	32"	$\frac{3}{8}$ "	44"	26"	$\frac{5}{16}$ "	$\frac{3}{16}$ "	26	3"	96"
25	36"	$\frac{3}{8}$ "	50"	30"	$\frac{5}{16}$ "	$\frac{3}{16}$ "	32	3"	96"
30	36"	$\frac{3}{8}$ "	50"	30"	$\frac{5}{16}$ "	$\frac{3}{16}$ "	32	3"	120"
35	42"	$\frac{3}{8}$ "	44"	36"	$\frac{5}{16}$ "	$\frac{3}{16}$ "	43	3"	96"
40	42"	$\frac{3}{8}$ "	50"	36"	$\frac{5}{16}$ "	$\frac{3}{16}$ "	43	3"	120"
50	48"	$\frac{3}{8}$ "	56"	42"	$\frac{5}{16}$ "	$\frac{3}{16}$ "	56	3"	120"
60	48"	$\frac{3}{8}$ "	62"	42"	$\frac{5}{16}$ "	$\frac{3}{16}$ "	56	3"	144"
70	54"	$\frac{5}{16}$ "	62"	48"	$\frac{5}{16}$ "	$\frac{3}{16}$ "	60	3"	144"
80	54"	$\frac{5}{16}$ "	68"	48"	$\frac{5}{16}$ "	$\frac{3}{16}$ "	60	3"	168"
90	60"	$\frac{5}{16}$ "	62"	54"	$\frac{5}{16}$ "	$\frac{3}{16}$ "	82	3"	156"
100	60"	$\frac{5}{16}$ "	68"	54"	$\frac{5}{16}$ "	$\frac{3}{16}$ "	82	3"	168"

Horse Power	Dome		Safety Valve	Stack		Gauge	Shipping Weights	
	Diam.	Height		Blow-Off Cock	Diam.		Boiler with Castings and Trimmings	Stack
15	16"	16"	$1\frac{1}{2}$ "	14"	16"	16	3900	300
20	16"	16"	$1\frac{1}{2}$ "	14"	16"	16	4200	375
25	18"	18"	2"	14"	18"	16	5260	400
30	18"	18"	$2\frac{1}{2}$ "	14"	18"	16	5800	475
35	22"	22"	$2\frac{1}{2}$ "	$1\frac{1}{2}$ "	20"	16	6260	450
40	22"	22"	3"	$1\frac{1}{2}$ "	20"	16	7200	535
50	24"	24"	3"	$1\frac{1}{2}$ "	24"	16	9850	625
60	24"	24"	$3\frac{1}{2}$ "	2"	24"	16	11175	725
70	28"	28"	$3\frac{1}{2}$ "	2"	26"	16	12650	800
80	28"	28"	4"	2"	26"	16	13880	900
90	30"	30"	4"	2"	28"	16	15880	1000
100	30"	30"	5"	2"	28"	16	16900	1100

When ordered complete we furnish Boiler mounted on skids, Grates, Lever Safety-Valve, Water-Gauge, Gauge-Cocks, Steam-Gauge and Syphon, Blow-Off Cock, Check- and Stop-Valves, Smoke-Stack and Guy Wire.

These Boilers are made throughout of Open-Hearth Flange Steel, 60,000 pounds T. S., and are tested with steam and also subjected to a hydrostatic test of 150 pounds pressure before leaving our works.

Frost Fire Fronts



FULL FLUSH FRONT—For Boilers 44 inches and over in diameter. Fronts for boilers under 44 inches have single doors.



HALF ARCH FRONT—For boilers 44 inches and over in diameter. Fronts for boilers under 44 inches have single doors.



Continental



Standard

Continental Heater and Purifier

This heater is especially adapted for removing the impurities from and heating the water for use in boilers. This is accomplished by admitting the water at the top of the heater and having it pass over a series of plates before reaching the settling chamber at the bottom. The water during this time is in contact with the exhaust steam, which brings the water to the boiling point and sets free the impurities, which are deposited on the plates.

The precipitating and heating surfaces being large, insure a high degree of efficiency. The plates to which the impurities adhere are easily removed for the purpose of cleaning.

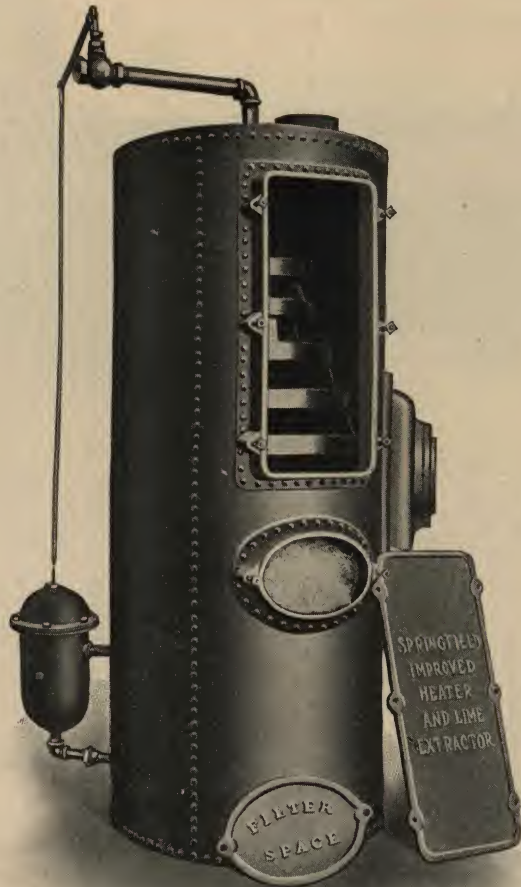
A separator is introduced which very efficiently removes the cylinder oil which is so objectionable and injurious to boilers.

The amount of water admitted to the heater is regulated by an automatic valve. All heaters are made with steam inlet opposite the door unless otherwise specified.

No.	Horse Power	Price	Diam. Inches	Height Inches	Exhaust Inches	Hot Water Pipe Inches	Cold Water Pipe Inches	Blow Off Pipe Inches	Shipping Weight Lbs.
2	50 to 100	295.00	24	78	5	1½	1½	1½	900
3	100 to 200	386.00	30	96	7	2	1½	2	1650
4	200 to 300	514.00	36	108	8	2½	1½	2	2650

Frost Standard Feed Water Heaters

Number	1	2	3	4	5	6	7	8	9	10
Horse Power	35	50	60	75	80	100	150	200	300	350
Price	105.00	113.00	118.00	138.00	151.00	186.00	215.00	284.00	353.00	386.00
Diameter of Heater	20"	20"	20"	24"	24"	30"	30"	36"	42"	42"
Length over all	42"	42"	48"	48"	52"	58"	68"	78"	84"	84"
Number of 2 inch Tubes	15	20	20	27	32	46	52	66	80	100
Length of Tubes	30"	30"	36"	36"	36"	42"	48"	54"	60"	60"
Thickness of Shell	⅜"	⅜"	⅜"	⅜"	⅜"	¾"	¾"	¾"	¾"	¾"
Thickness of Heads	⅜"	⅜"	⅜"	⅜"	⅜"	¾"	¾"	¾"	¾"	¾"
Diameter of Exhaust	3	3½	4	4½	4½	6	7	10	10	10
Diameter of Feed Pipe	1	1	1	1½	1½	1½	2	2	2½	2½
Size of Safety Valve	1	1	1	1½	1½	1½	2	2	2½	2½
Weight in pounds	1000	1050	1100	1300	1400	1800	2000	2800	3400	3600



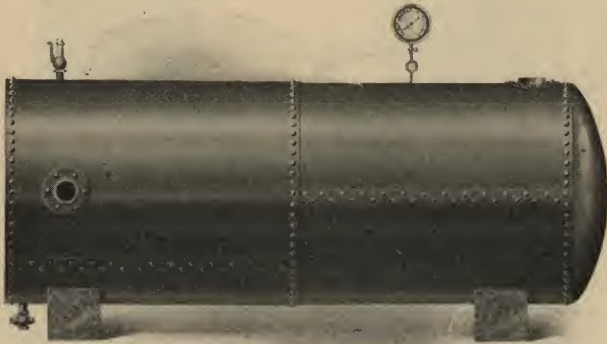
“Springfield” Improved Feed Water Heater and Lime Extractor

Among the points of merit which we claim for this heater are its simplicity, accessibility, efficiency and low cost.

This heater is equipped with an Automatic Feed Water Regulator, which regulates the amount of water admitted to the heater, so that no more is allowed to enter than is required by the pump to feed the boiler, thus maintaining the water at a constant level.

This heater is also provided with an efficient Oil Extractor, which keeps the oil out of the feed water, a feature of value in lengthening the life of boilers.

No.	Price	Diameter	Height	Approximate Horse Power	Cold Water Inlet	Hot Water Outlet	Exhaust Inlet and Outlet	Approximate Shipping Weight
1	144.00	24"	60"	50 to 75	1½"	1½"	4"	725
2	153.00	24"	72"	75 to 100	1½"	1½"	5"	850
3	162.00	30"	72"	100 to 125	1½"	2"	6"	1100
4	171.00	30"	84"	125 to 150	1½"	2"	6"	1250
5	201.00	36"	84"	150 to 200	1½"	2½"	7"	1400
6	213.00	36"	96"	200 to 250	2"	2½"	8"	1600
7	246.00	40"	96"	250 to 300	2"	2½"	10"	2200
8	315.00	48"	120"	350 to 400	2½"	3"	10"	2500



Air Receivers

Unless otherwise specified, Receivers are furnished without manholes.
These Receivers are made 60,000 T. S. Steel, tested to 150 pounds water pressure and guaranteed safe under 110 pounds working pressure. The following fixtures are included: Pop Safety Valve, Pressure Gauge and Drain Cock.

No. -----	1	2	3	4	5	6	7
Price -----	68.00	89.00	113.00	130.00	146.00	172.00	191.00
Diameter, in inches-----	18	24	30	36	36	42	42
Length, in feet-----	6	6	6	6	8	8	10
Thickness Shell -----	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Thickness Heads -----	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Diameter Flanges -----	23 1/2	23 1/2	23 1/2	3	3 1/2	5	5
Diameter Safety Valve -----	1	1	1	1 1/2	1 1/2	1 1/2	1 1/2
Capacity cubic feet Free Air -----	90	120	150	200	300	500	625
Approximate Weight -----	300	400	560	1140	1250	1600	1850

In ordering state whether Vertical or Horizontal Receiver is wanted.

Pressure Tanks

TESTED 150 POUNDS MANHOLE IN ONE HEAD

Prices include not to exceed three flanged openings and all openings not too large to be tapped in shell.

Size Tank	Price	Thickness Shell, Inches	Thickness Heads, Inches	Weight	Capacity, Gallons
30"x 3'	105.00	1 1/4	1 1/4	600	110
30"x 4'	110.00	1 1/4	1 1/4	700	145
30"x 5'	117.00	1 1/4	1 1/4	800	180
30"x 6'	122.00	1 1/4	1 1/4	890	220
30"x 7'	130.00	1 1/4	1 1/4	1000	250
30"x 8'	136.00	1 1/4	1 1/4	1100	290
36"x 4'	130.00	1 1/4	1 1/4	900	210
36"x 5'	134.00	1 1/4	1 1/4	1000	260
36"x 6'	143.00	1 1/4	1 1/4	1140	315
36"x 7'	149.00	1 1/4	1 1/4	1250	365
36"x 8'	159.00	1 1/4	1 1/4	1400	420
36"x 10'	173.00	1 1/4	1 1/4	1600	520
36"x 12'	188.00	1 1/4	1 1/4	1850	625
42"x 6'	162.00	1 1/4	1 1/4	1300	430
42"x 8'	178.00	1 1/4	1 1/4	1600	575
42"x 10'	196.00	1 1/4	1 1/4	1850	720
42"x 12'	212.00	1 1/4	1 1/4	2100	860
42"x 14'	232.00	1 1/4	1 1/4	2450	1000
48"x 8'	232.00	1 1/2	1 1/2	2020	750
48"x 10'	251.00	1 1/2	1 1/2	2420	940
48"x 12'	280.00	1 1/2	1 1/2	2700	1130
48"x 14'	300.00	1 1/2	1 1/2	3060	1300
48"x 16'	324.00	1 1/2	1 1/2	3420	1500

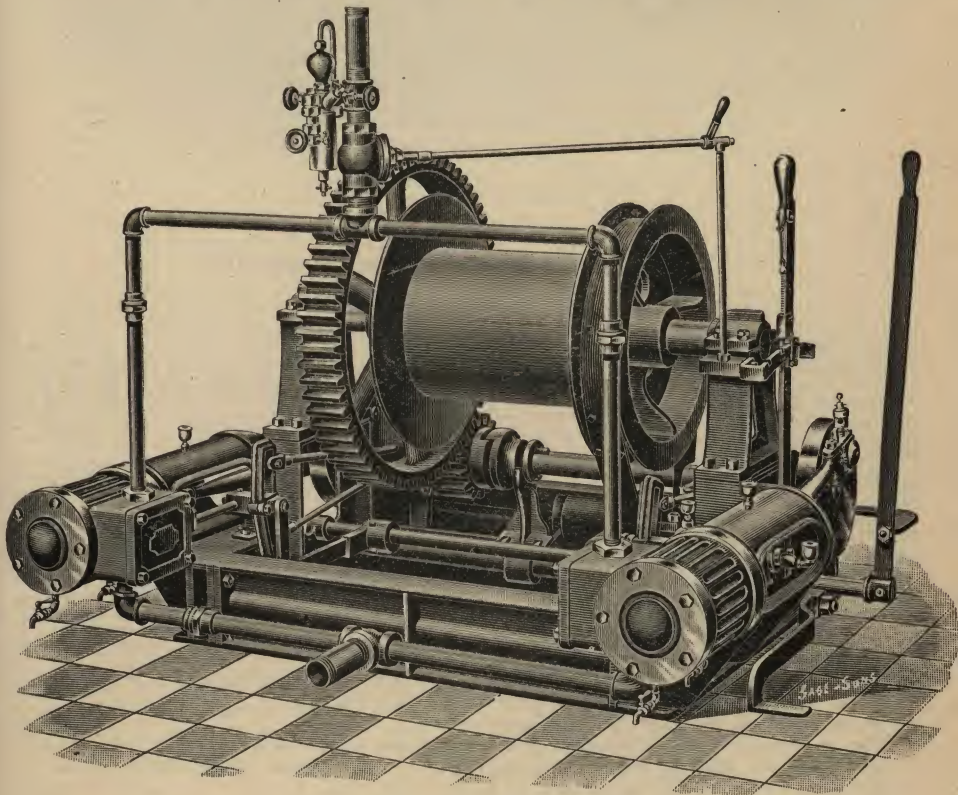
Caldwell Air Cooled Air Compressor



This compressor is designed for all purposes where a small volume of compressed air is required. It has double cylinders, single acting. The air cooling feature dispenses with all troublesome water jackets, pipe connections and water tanks, and the principle applied is the same as that used by numerous automobile builders and the well known air pump on every locomotive for supplying air for brakes; the ribs carry away the heat by radiation so rapidly that undue heating of the cylinder is prevented. The capacity is ample for handling a pneumatic hammer, drill or hoist. These compressors are especially suited for use in automobile garages for pumping up tires, cleaning cushions, etc.

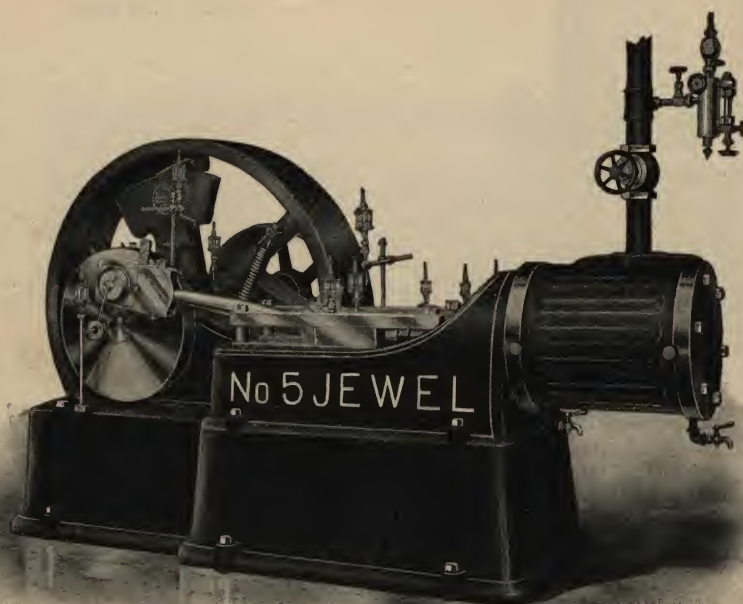
MAXIMUM WORKING PRESSURE 200 POUNDS

Cubic Feet Free Air per Minute	Diameter of Cylinder	Stroke	Rev. per Minute	Air Pipe	Diameter of Pulley	Weight	Price
8	3½"	4"	200	½"	24x3	300	60.00



Hoisting Engines

Special catalogue and prices sent on application



Jewel Automatic Engines

WITH RITES GOVERNOR

Engine Number.....	1		2		3		4		5		6		7		8	
Horse Power Rating.....	6 to 8		8 to 10		10 to 12		15 to 18		20 to 25		30 to 35		40 to 45		50 to 55	
	At	At	At	At	At	At	At	At	At	At	At	At	At	At	At	At
Revolutions per Minute....	260	380	230	320	230	300	220	280	220	260	220	260	200	230	200	225
Cylinder, Bore	4½"		5"		6"		7½"		8"		9½"		10"		10"	
Cylinder, Stroke	6"		7½"		7½"		8"		10"		10"		12"		15"	
Steam Pipe	1½"		1½"		1½"		2"		2"		2"		2½"		3"	
Exhaust Pipe	1½"		1½"		2"		2½"		2½"		2½"		3"		4"	
Fly-Wheel, Diameter	20"		30"		30"		35"		42"		42"		48"		60"	
Fly-Wheel, Face	5½"		6"		6½"		7½"		9½"		9½"		9½"		12"	
Fly-Wheel, Weight	135		200		340		435		660		660		750		1000	
Belt Pulley, Diameter	14"		16"		18"		20"		20"		24"		24"		30"	
Belt Pulley, Face	6½"		7½"		8½"		10½"		12"		12"		12"		12"	
Diameter of Shaft	1½"		2"		2½"		2½"		3"		3"		3½"		3½"	
Floor Space	52 x 36		64 x 38		64 x 38		69½ x 46½		73 x 54		73 x 54		112 x 60		120 x 78	
Weight, Complete	700		1050		1275		1850		3150		3300		4500		7200	
Cubic ft. boxed for export.	28		59½		59½		92		148		148		234		401	

Horse Power rating is based on 80 lbs. initial pressure, ¼ cut-off.

Every engine thoroughly tested under actual service conditions before shipment.

In the No. 1 Jewel the sub-base and frame is one solid casting.

On crank pin we use center oilers on all sizes.

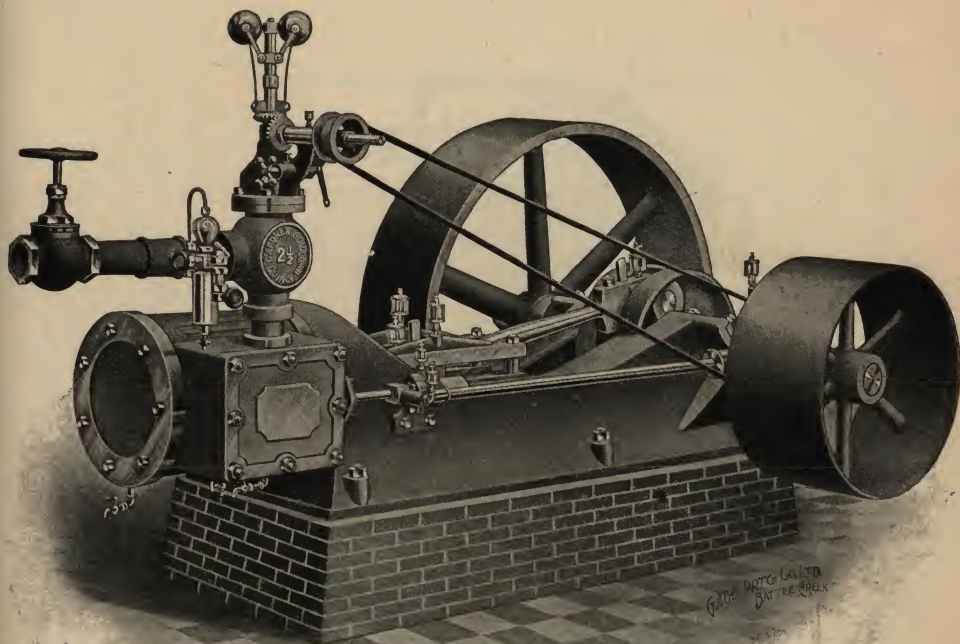
Engines are set to run at the highest speed, when leaving our factory, unless otherwise ordered.

All engines are right-hand and run over (top of fly-wheel running away from cylinder).

Extra charge made for foundation bolts.

If desired, we can furnish center oiler in place of wipe oiler on any size Jewel without extra charge.

We ship with each Engine a complete set of glass oilers, sight-feed lubricator, one throttle valve and two cylinder cocks.



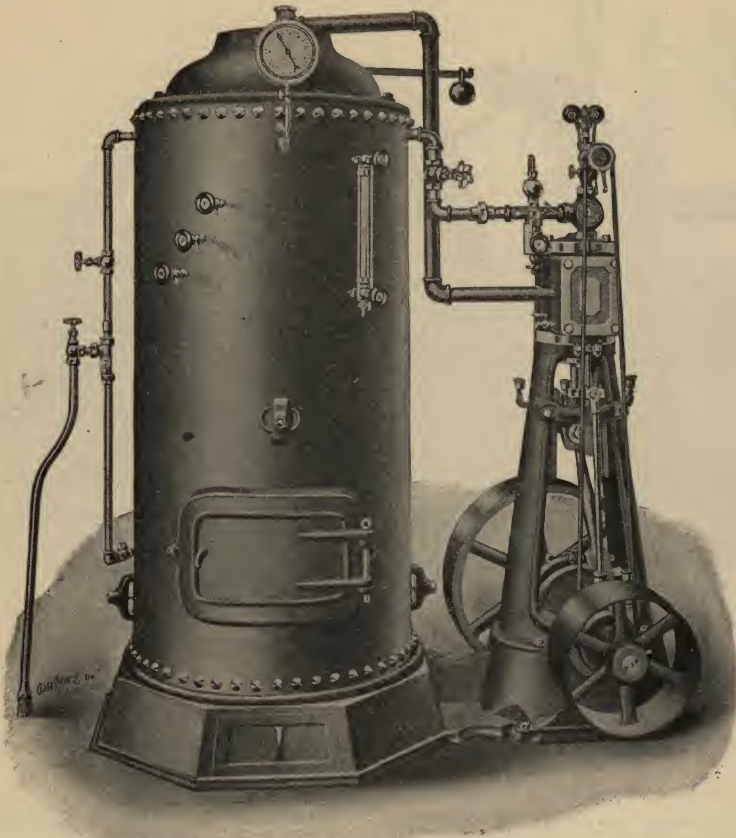
Horizontal Center-Crank Engines

Our horizontal center-crank is a strong, simple, plain engine.

The lower slides, the journal boxes, the center of the cylinder, the cross-head and the crank shaft bearings are in a direct line, thus relieving the studs which hold the upper slides from all strain, and bring the thrust of the crank bearings directly on the engine bed and not on the studs. The cylinder, ways and cross-head are of the modern locomotive pattern. The piston has self-adjusting packing rings. The cylinder heads are overhanging and polished, and in connection with the iron jacket, present a surface always bright, and one that can be easily kept clean. The connecting rods and eccentric rod have adjusting brass boxes.

Horse Power	4	6	8	10	12	15	20	25	35	40	50
Cylinder, Bore	4"	5"	6"	7 $\frac{1}{2}$ "	8"	9"	10"	10"	10"	11"	12"
Cylinder, Stroke	5"	7 $\frac{1}{2}$ "	7 $\frac{1}{2}$ "	8"	9"	10"	10"	12"	15"	15"	15"
Steam Pipe	3"	1"	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	2"	2"	2 $\frac{1}{2}$ "	3"	3 $\frac{1}{2}$ "
Exhaust Pipe	1"	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	2"	2"	2"	2 $\frac{1}{2}$ "	2 $\frac{1}{2}$ "	3 $\frac{1}{2}$ "	4"	4 $\frac{1}{2}$ "
Revolutions per Minute	300	250	200	200	180	180	150	150	150	150	150
Governor Pulley, Diameter	4 $\frac{1}{2}$ "	5 $\frac{1}{2}$ "	6 $\frac{1}{2}$ "	9"	9"	9"	9"	9"	6 $\frac{1}{2}$ "	8 $\frac{1}{2}$ "	8 $\frac{1}{2}$ "
Governor Pulley, Face	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	2"	2"	2"	2"	2"	2 $\frac{1}{2}$ "	2 $\frac{1}{2}$ "	2 $\frac{1}{2}$ "
Fly Wheel, Diameter	17"	24"	24"	30"	30"	35"	40"	48"	60"	60"	60"
Fly Wheel, Face	4 $\frac{1}{2}$ "	6"	6"	6 $\frac{1}{2}$ "	6 $\frac{1}{2}$ "	7 $\frac{1}{2}$ "	9 $\frac{1}{2}$ "	12"	12"	12"	12"
Fly Wheel, Weight	65	170	170	180	180	350	420	500	1000	1000	1250
Belt Pulley, Diameter	12"	14"	14"	16"	18"	18"	20"	24"	30"	30"	36"
Belt Pulley, Face	5"	6 $\frac{1}{2}$ "	6 $\frac{1}{2}$ "	7 $\frac{1}{2}$ "	8 $\frac{1}{2}$ "	8 $\frac{1}{2}$ "	12"	12"	12 $\frac{1}{2}$ "	12 $\frac{1}{2}$ "	12 $\frac{1}{2}$ "
Diameter of Shaft	1 $\frac{1}{2}$ "	1 $\frac{1}{8}$ "	1 $\frac{1}{8}$ "	2 $\frac{1}{8}$ "	2 $\frac{1}{8}$ "	2 $\frac{1}{8}$ "	3"	3 $\frac{1}{8}$ "	3 $\frac{1}{8}$ "	4 $\frac{1}{8}$ "	4 $\frac{1}{8}$ "
From foundation top to Center of shaft	6 $\frac{1}{2}$ "	7 $\frac{1}{2}$ "	7 $\frac{1}{2}$ "	7 $\frac{1}{2}$ "	7 $\frac{1}{2}$ "	7 $\frac{1}{2}$ "	10"	11 $\frac{1}{2}$ "	13"	13"	13"
Floor Space, inches	44	62	62	78	79	80	84	96	127	127	127
Weight Complete	350	660	700	1200	1250	1600	2350	3160	4500	4800	5200
Cubic ft. crated for export	13 $\frac{1}{2}$	26	26	37	37	50	74	118	188	188	197

TRIMMINGS—The above engines include governor, governor pulley and belt, glass oilers, cylinder lubricator, throttle valve and cylinder cocks.



Vertical Engines and Boilers

The above illustrates our Combined Vertical Engine and Boiler, trimmed and piped complete, built in any size boiler from $1\frac{1}{2}$ H. P. to 16 H. P. and engine 1 H. P. to 15 H. P. See specifications on following page. We always furnish on independent bases unless otherwise ordered, but we make no extra charge for combining on one base when desired.

Vertical Engines

Neat and simple in design, strong and durable in construction. Discs are heavy cast iron. Shaft and wristpin best grade of machinery steel, pressed together with hydraulic pressure and keyed. Steel connecting rods. Brasses of best box metal, and all parts of the engine adjustable. High grade standard trimmings furnished. All engines run and tested under actual working pressure.

Vertical Boilers

All Boilers above 26 inches in diameter have vertical seams, double riveted. They are made of flange steel 60,000 lbs. T. S., and are tested to 150 lbs. hydrostatic pressure. Octagon bases on all sizes.

For specifications see following page.

Dimensions of Vertical Engines

Rated horse power.....	1	2	3	4	5
Cylinder, bore	24"	30"	36"	42"	48"
Cylinder, stroke	30"	36"	42"	48"	54"
Steam pipe	3"	3"	3"	3"	3"
Exhaust pipe	2"	2"	2"	2"	2"
Revolutions per minute	400	350	350	300	300
Belt pulley, diameter	6"	10"	10"	12"	12"
Belt pulley, face	3½"	4½"	4½"	5"	5"
Governor pulley, diameter	3"	4"	4"	4½"	4½"
Governor pulley, face	1½"	1½"	1½"	1½"	1½"
Floor space, inches	14 x 26	18 x 18	18 x 18	18 x 20	18 x 20
Height to top of cylinder	30"	3' 6"	3' 6"	3' 8"	3' 8"
Weight, complete	170	275	300	425	500
Balance wheel, diameter	13"	15"	15"	17"	17"
Balance wheel, face	3½"	4"	4"	4½"	4½"
Balance wheel, weight	35	45	45	65	65
Diameter of shaft	1½"	1½"	1½"	1½"	1½"
Cubic feet when crated for export	6	16	18½	18½	18½
Rated horse power.....	6	8	10	12	15
Cylinder, bore	5"	6"	7½"	7½"	7½"
Cylinder, stroke	7½"	7½"	8"	9"	10"
Steam pipe	1"	1½"	1½"	1½"	1½"
Exhaust pipe	1½"	1½"	2"	2"	2"
Revolutions per minute	250	200	200	180	180
Belt pulley, diameter	14"	14"	16"	18"	18"
Belt pulley, face	6½"	6½"	7½"	8½"	8½"
Governor pulley, diameter	5½"	6½"	9"	9"	9"
Governor pulley, face	1½"	1½"	2"	2"	2"
Floor space, inches	20 x 25	20 x 25	24 x 30	24 x 30	24 x 30
Height to top of cylinder	4' 5"	4' 5"	5' 6"	5' 7"	5' 8"
Weight, complete	700	850	1250	1400	1500
Balance wheel, diameter	24"	24"	30"	30"	35"
Balance wheel, face	6"	6"	6½"	6½"	7½"
Balance wheel, weight	170	170	180	180	350
Diameter of shaft	1½"	2"	2½"	2½"	2½"
Cubic feet when crated for export	32	32	54	54	59

TRIMMINGS—The above include governor, governor pulley and belt, throttle valve, oil cups, cylinder lubricator, belt wheel, balance wheel, and air cock.

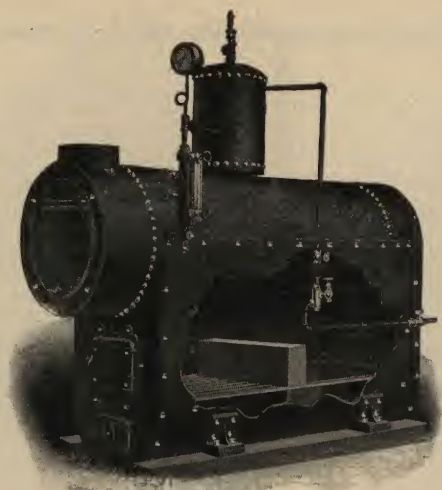
Specifications of Plain Vertical Boilers

Horse power	1½	2	3	4	5	6	8	10	12	14	16
Diameter of boiler	20"	20"	20"	24"	24"	26"	30"	30"	36"	36"	36"
Height above base	36"	43"	49"	50"	60"	60"	60"	60"	72"	72"	84"
Diameter of furnace	16"	16"	16"	21"	21"	22"	25"	25"	30"	30"	30"
Height of furnace	18"	18"	18"	20"	20"	22"	24"	24"	24"	28"	32"
Thickness of steel in shell	½"	½"	½"	½"	½"	½"	½"	½"	½"	½"	½"
Thickness of steel in heads	½"	½"	½"	½"	½"	½"	½"	½"	½"	½"	½"
Thickness of steel in fire box	½"	½"	½"	½"	½"	½"	½"	½"	½"	½"	½"
Length of tubes	18"	25"	31"	30"	40"	33"	36"	48"	48"	56"	64"
Number of 2-inch tubes	16	19	19	31	31	37	43	43	55	55	55
Weight of boiler without trimmings or fixtures	325	430	530	640	750	840	1010	1180	1520	1800	2280
Weight of boiler complete	475	560	620	890	1060	1300	1550	1650	2350	2540	3000
Outside diameter of stack opening	8½"	8½"	8½"	10"	10"	11"	12½"	12½"	16"	16"	16"
Height from floor to top of hood	50"	54"	60"	66"	76"	76"	76"	94"	98"	108"	120"
Cubic feet when crated for export	13½	15	16½	26	30	35½	42	48½	69	78	87

CAST FIXTURES—Base, hood, fire door, and grates.

TRIMMINGS—Injector fitted with pipe and valves, steam gauge water gauge, gauge cocks, safety valve, and blow-off.

These Engines and Boilers can be furnished combined on one base, as shown by cut on preceding page, and when so furnished, price will include injector fitted to boiler, also steam and exhaust pipes.



Ideal Economist Boilers

The above cut represents the Ideal Economist Boiler, designed for work requiring moderate power in a small compass. The fire box is furnished with a full set of fire brick, which forms a complete lining.

It is made of flange steel of 60,000 lbs. tensile strength, and is built for service.

It is securely braced and stayed; all longitudinal seams above 6 H. P. are double riveted.

It is compact, and in point of economy in the use of fuel is a very desirable and convenient boiler. Mounted on skids.

Specifications of Ideal Economist Boilers

Horse power	4	5	6	7	8	10	12	15	20
Diameter of shell	26"	26"	26"	30"	30"	30"	30"	36"	36"
Length of tubes	3'	4'	5'	5'	6'	7'	8'	7'	9'
No. of 3-inch tubes	15	15	15	22	22	22	22	28	28
Thickness of shell	$\frac{3}{4}$ "	$\frac{3}{4}$ "	$\frac{3}{4}$ "	$\frac{3}{4}$ "	$\frac{3}{4}$ "	$\frac{3}{4}$ "	$\frac{3}{4}$ "	$\frac{3}{4}$ "	$\frac{3}{4}$ "
Thickness of heads	$\frac{5}{8}$ "	$\frac{5}{8}$ "	$\frac{5}{8}$ "	$\frac{5}{8}$ "	$\frac{5}{8}$ "	$\frac{5}{8}$ "	$\frac{5}{8}$ "	$\frac{5}{8}$ "	$\frac{5}{8}$ "
Length grates	24"	24"	24"	24"	30"	30"	30"	36"	36"
Width grates	20"	20"	20"	24"	24"	24"	24"	29"	29"
Size pop safety valve	$\frac{3}{4}$ "	$\frac{3}{4}$ "	$\frac{3}{4}$ "	$\frac{3}{4}$ "	$\frac{3}{4}$ "	$\frac{3}{4}$ "	$\frac{3}{4}$ "	$\frac{3}{4}$ "	$\frac{3}{4}$ "
Size blow-off valve	$\frac{3}{4}$ "	$\frac{3}{4}$ "	$\frac{3}{4}$ "	$\frac{3}{4}$ "	$\frac{3}{4}$ "	$\frac{3}{4}$ "	$\frac{3}{4}$ "	$\frac{3}{4}$ "	$\frac{3}{4}$ "
No. of fire brick lining	10	12	14	14	16	18	20	20	24
Size of fire brick lining	12 x 22	12 x 22	12 x 22	12 x 24	12 x 24	12 x 24	12 x 24	12 x 24	12 x 24
Weight of fire brick lining	500	600	700	800	900	1025	1150	1100	1350
Length of stack	20'	20'	20'	24'	24'	24'	24'	24'	24'
Diameter of stack	12"	12"	12"	14"	14"	14"	14"	16"	16"
Height from floor to top of boiler shell	56"	56"	56"	67"	67"	67"	67"	72"	72"
Height from floor to top of dome	75"	75"	75"	88"	88"	88"	88"	96"	96"
Shipping Weight, complete	2500	2750	3200	3770	4200	4600	5200	5750	6700

With these Boilers the following fixtures and fittings are furnished:

Smoke box extension, door and stack saddle, grate bars, bearing bars, bridge wall, fire brick lining, pop safety valve, steam gauge and siphon, water column with glass water gauge, two gauge cocks; feed, check and blow-off valves; injector fitted to boiler, smoke stack and guys four times length of stack. Detachable domes enable convenient loading in box cars, as well as economy in freight charges.



The Eureka Boiler or Steam Feed Cooker

The Eureka Feed Cooker is made from boiler steel with regular boiler tubes, making it durable, rigid and strong. It will cook or steam any kind of feed placed in a barrel or vat, with but little care and without danger of burning. It can also be used for heating water for a variety of purposes, for steaming casks, milk cans, etc.

The Eureka Boiler is well adapted for supplying steam to wheat heaters and steamers.

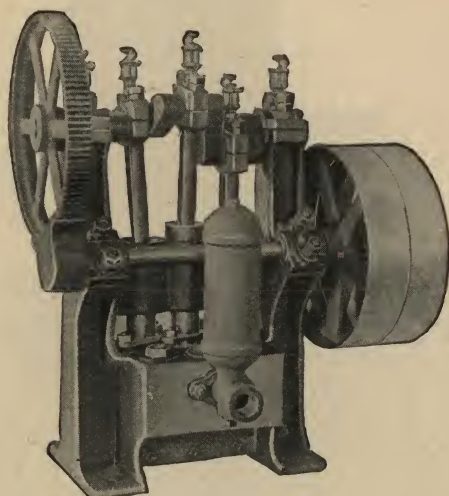
No.	Price	Diameter of Shell	Height of Shell	No. of 2-in. Flues	Length of Boiler Over All	Shipping Weight	Capacity, Gallons
1	30.00	19"	40"	9	54"	375	21
2	35.00	19"	44"	13	58"	400	25
3	40.00	19"	44"	13	58"	460	30

The trimmings for No. 1 and No. 2 include two gauge cocks, blow-off valve, pump for supplying the boiler with water, safety valve, 2 feet 6 inches suction hose, 3 feet steam pipe with valve to convey steam to barrel or vat for cooking feed or boiling water.

The trimmings for No. 3 include two gauge cocks, blow-off valve, pump for supplying the boiler with water, safety valve, 2 feet 6 inches suction hose, 5 feet 6 inches steam pipe with valve to convey steam to barrel or vat for cooking feed or boiling water. We can furnish steam gauge and water gauge with glass complete, if desired, at a small additional cost.

The No. 3 Cooker is built with water leg, so that the fire box is surrounded by water like a regular vertical boiler. This size has hand hole plate over the fire door and two washout plugs at the bottom of water leg for cleaning out, and is tested to 150 lbs. cold water pressure, and will produce $1\frac{1}{2}$ horse power.

We wish to call your attention to the fact that one of the strongest points of the Eureka Boiler is that it is furnished with a force pump, so the operator may put water in at any time without letting down steam and stopping the progress of the cooking.



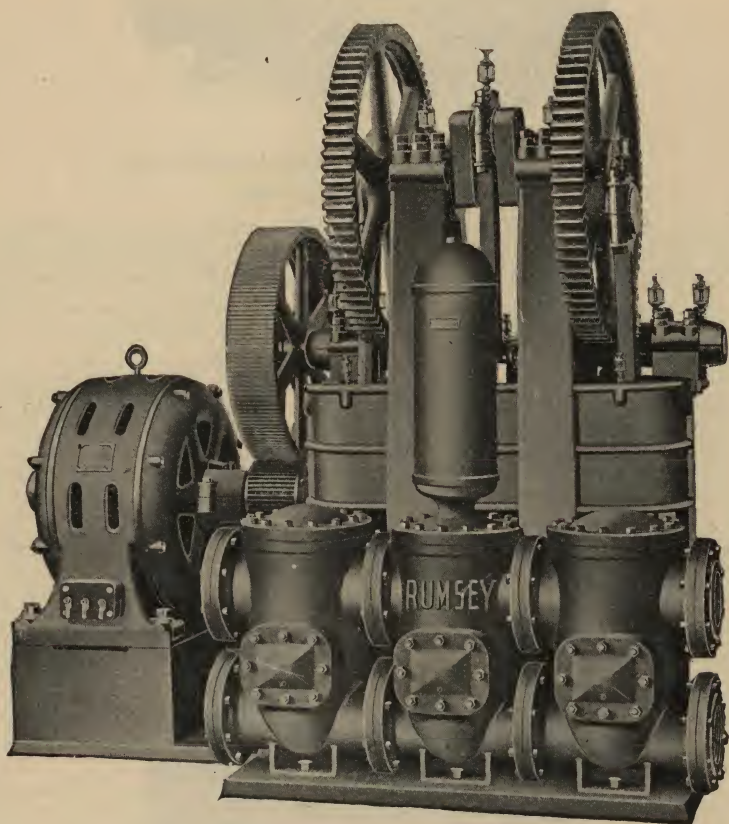
Single Acting Triplex Pumps

The cut represents a single acting Triplex Pump designed for feeding boilers, general tank supply, operating hydraulic presses, elevators and similar service.

All working parts, packing glands and valves are easily accessible for adjustment. The gearing is machine cut, ratio 5 to 1.

In ordering, state whether hot or cold water is to be pumped.

Diam. of Plungers	Stroke	Working Pressure, Pounds	Price	Weight	Suction	Discharge	Capacity at 40 to 60 Revs. of Crank Shaft per Minute, Gallons	Tight and Loose Pulleys
1½	2	150	50.00	110	1	¾	1.2 to 1.8	12 x 1½
1½	3	150	80.00	195	1	1	3.6 to 5.4	12 x 2
2	3	130	85.00	210	1½	1½	4.8 to 7.2	12 x 2
2½	4	150	125.00	355	1½	1½	8. to 12.	12 x 2½
3	4½	150	160.00	650	1½	1½	16. to 24.	15 x 2½
3½	5	150	220.00	983	2	2	25. to 37.	20 x 3
4	6	150	275.00	1240	2½	2	40. to 60.	20 x 4
4½	6	120	280.00	1300	3	2½	49. to 74.	20 x 4
5	6	150	400.00	2150	3	3	61. to 91.	24 x 5
1½	2	200	60.00	120	1	¾	1.2 to 1.8	12 x 1½
1½	3	200	100.00	210	1	1	2.8 to 4.2	12 x 2
2	4	200	150.00	390	1½	1½	6.4 to 9.6	12 x 2½
2½	4½	200	180.00	750	1½	1½	11.2 to 16.8	15 x 2½
3	5	200	240.00	1100	1½	1½	18.4 to 27.6	20 x 3
3½	6	200	300.00	1540	2	2	30. to 45.	20 x 4
1½	3	250	100.00	210	1	1	2.28 to 3.42	12 x 2
1½	4	250	150.00	390	1½	1½	5.04 to 7.56	12 x 2½
2½	4½	250	180.00	750	1½	1½	9.28 to 13.9	15 x 2½
2½	5	250	240.00	1100	1½	1½	12.8 to 19.2	20 x 3
3	6	250	300.00	1540	2	2	22. to 33.	20 x 4

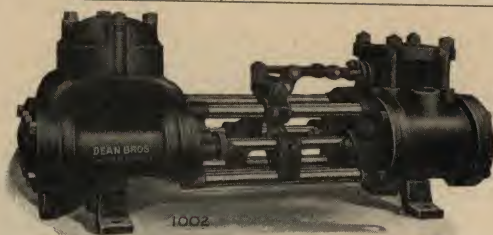


Triplex Pumps

The above cut shows a motor driven Triplex Pump suitable for a municipal pumping plant. This combination is desirable when the pumping plant has to be located at some distance from the power plant, wherever water is obtainable.

These pumps are probably more often furnished direct connected or belted from a gasoline engine. In localities where solar oil, distillates, etc., can be obtained at a low cost, this combination is most desirable, as the operating expense is reduced to a very low figure.

Write us freely for estimates and special printed matter describing these combinations.



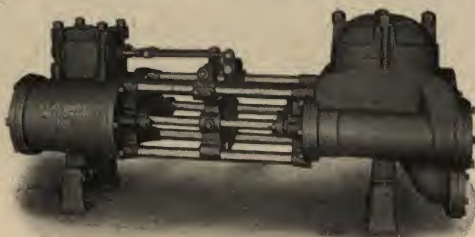
Dean Bros. Durable Duplex Pumps FOR FEEDING BOILERS

In this Pump the valve gear has been much simplified and various important improvements made. The sizes in the list below are intended for feeding boilers, pumping against pressure, etc. They will elevate water 200 feet with 60 pounds steam pressure, and are designed for 150 pounds working pressure. When ordering, please state for what purpose the pump will be used and whether water is hot or cold.

In determining the proper size of boiler feed pumps bear in mind that slow speed is an essential factor for the best results. Thirty pounds of water per hour per horse power is the usual basis of estimate.

When desired, pumps are brass fitted at a slight additional charge.

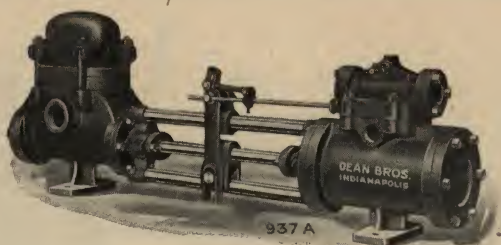
Diam. Steam Cylinder, Inches	Diam. Water Cylinder, Inches	Length of Stroke, Inches	Gals. per Stroke of One Plunger	Strokes per Minute of each Piston	Gallons per Minute at Stated Number of Strokes	Size of Pipes in Inches				Weight
						Steam	Exhaust	Suction	Dis- charge	
3	2	4	.054	100 to 200	10 to 20	$\frac{3}{8}$	$\frac{3}{8}$	$1\frac{1}{2}$	1	163
4	$2\frac{5}{8}$	5	.12	100 to 200	24 to 48	$\frac{3}{8}$	$\frac{3}{8}$	2	$1\frac{1}{2}$	250
$5\frac{1}{2}$	$3\frac{3}{4}$	5	.24	100 to 150	48 to 72	1	$1\frac{1}{2}$	$2\frac{1}{2}$	$1\frac{1}{2}$	402
6	4	6	.33	100 to 150	66 to 100	1	$1\frac{1}{2}$	3	2	485
7	$4\frac{1}{2}$	10	.69	75 to 125	95 to 172	$1\frac{1}{2}$	2	4	3	770
8	5	12	1.02	75 to 100	153 to 204	$1\frac{1}{2}$	2	5	4	1190
9	6	12	1.47	75 to 100	220 to 294	2	$2\frac{1}{2}$	5	4	1417
10	7	12	2.00	75 to 100	300 to 400	2	$2\frac{1}{2}$	6	5	1830
12	8	12	2.61	60 to 100	317 to 522	$2\frac{1}{2}$	3	7	6	2420
14	10	12	4.08	50 to 100	400 to 800	$2\frac{1}{2}$	3	8	7	3440
16	12	18	8.81	40 to 80	705 to 1410	3	$3\frac{1}{2}$	10	8	8000



Dean Bros. Durable Duplex Pumps FOR TANK OR LIGHT SERVICE

For pumping water or other liquids to limited heights and distances these pumps possess special advantages. They combine large pumping capacity with small expenditure of steam. They are principally used at railroad water stations, gas and oil works, tanneries, refineries, distilleries, quarries and clay pits; also for tunnels, sewerage and irrigating.

Diam. Steam Cylinder, Inches	Diam. Water Cylinder, Inches	Length of Stroke, Inches	Gals. per Stroke of One Plunger	Strokes per Minute of each Plunger	Gallons per Minute at Stated Number of Strokes	Size of Pipes in Inches				Weight
						Steam	Exhaust	Suction	Dis- charge	
4	$3\frac{3}{4}$	5	.23	100 to 200	47 to 95	$\frac{1}{2}$	$\frac{3}{8}$	2	$1\frac{1}{2}$	307
$5\frac{1}{2}$	5	5	.42	100 to 150	85 to 127	1	$1\frac{1}{2}$	3	2	490
6	6	6	.73	100 to 150	146 to 220	1	$1\frac{1}{2}$	4	3	720
7	6	10	1.22	100 to 125	244 to 305	$1\frac{1}{2}$	2	5	4	1140
7	7	10	1.66	75 to 125	249 to 416	$1\frac{1}{2}$	2	6	5	1370
8	8	12	2.61	75 to 125	392 to 652	$1\frac{1}{2}$	2	7	6	1660
10	10	12	4.08	75 to 125	612 to 652	$2\frac{1}{2}$	3	8	7	3800
12	12	18	8.81	50 to 100	881 to 1762	$2\frac{1}{2}$	3	10	8	7140
14	14	18	11.99	50 to 100	1199 to 2398	$2\frac{1}{2}$	3	12	10	7850



Dean Bros. Simple Pumps FOR FEEDING BOILERS

These pumps are designed for feeding boilers or pumping against pressure. They will elevate water 200 feet with 60 pounds of steam, and are designed for 150 pounds working pressure.

In determining the proper size of boiler feed pumps bear in mind that slow speed is an essential factor for the best results. Thirty pounds of water per hour per horse power is the usual basis of estimate.

When desired, pumps are brass fitted at a slight additional charge.

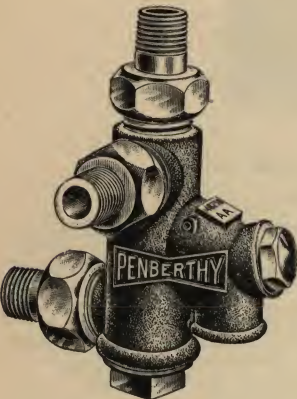
Size	Diam. Steam Cylinder, Inches	Diam. Water Cylinder, Inches	Length of Stroke, Inches	Gallons, per Stroke	*Capacity per Minute		Size of Pipes in Inches				Limit of Capacities for Feeding Boiler	Weight
					Strokes	Gals.	Steam	Ex- haust	Suc- tion	De- livery		
O	3	2	4	.054	200	10	$\frac{3}{4}$	$\frac{1}{2}$	$1\frac{1}{2}$	1	50 H. P.	116
D	4	2 $\frac{3}{4}$	6	0.14	140	20	$\frac{3}{4}$	$\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	100 H. P.	163
E	5 $\frac{1}{2}$	3 $\frac{3}{4}$	7	0.33	125	42	$\frac{3}{4}$	1	2	$1\frac{1}{2}$	220 H. P.	290
F	6	4	10	0.55	125	68	1	$1\frac{1}{2}$	3	2 $\frac{1}{2}$	400 H. P.	410
G	8	5	12	1.02	100	102	1	$1\frac{1}{2}$	4	3	700 H. P.	640
H	9	6	12	1.47	100	147	$1\frac{1}{2}$	2	4	3	1000 H. P.	862
I	10	7	12	2.00	100	200	$1\frac{1}{2}$	2	5	4	1300 H. P.	900
K	12	8	12	2.61	100	261	2	2 $\frac{1}{2}$	6	5	1600 H. P.	1100
L	14	9	16	4.40	80	352	2	3	7	6	2500 H. P.	1750
M	14	10	20	6.80	70	476	2	3	8	7	3500 H. P.	2750

*In an emergency more than the above capacity can be had, but for continuous work, such as FEEDING BOILERS, we advise not more than half the strokes given above. The valve motion secures a smooth action and admits of regulation, so as to deliver a steady supply of water, exactly equal to the amount evaporated.

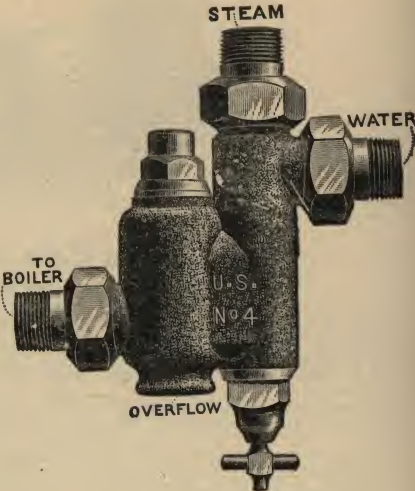
Dean Bros. Simple Pumps FOR TANK OR LIGHT SERVICE

For pumping water or other liquids to limited heights and distances these pumps possess special advantages. They combine Large Pumping Capacity with small expenditure of steam. They are principally used at railroad stations, gas and oil works, tanneries, refineries, distilleries, quarries and clay pits; also for tunnels, sewerage and irrigating.

Diam. Steam Cylinder, Inches	Diam. Water Cylinder, Inches	Length of Stroke, Inches	Gallons per Stroke	Capacity per Minute		Size of Pipes in Inches				Weight
				Strokes	Gals.	Steam	Exhaust	Suction	Discharge	
3	2 $\frac{3}{4}$	4	.094	200	18.8	$\frac{3}{4}$	$\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	122
4	4	6	.33	140	46.2	$\frac{3}{4}$	$\frac{1}{2}$	2	$1\frac{1}{2}$	215
5 $\frac{1}{2}$	5	7	.58	125	72.5	$\frac{3}{4}$	1	3	2 $\frac{1}{2}$	500
6	6	10	1.22	100	122.	1	$1\frac{1}{2}$	4	3	630
8	6	12	1.46	100	146.	1	$1\frac{1}{2}$	4	3	785
8	7	12	1.99	100	199.	1	$1\frac{1}{2}$	5	4	840
6	8	10	2.17	100	217.	1	$1\frac{1}{2}$	6	5	810
8	8	12	2.61	100	261.	1	$1\frac{1}{2}$	6	5	900
9	8	12	2.61	100	261.	$1\frac{1}{2}$	2	6	5	1000
8	10	12	4.08	100	408.	1	$1\frac{1}{2}$	6	5	1025
9	10	12	4.08	100	408.	$1\frac{1}{2}$	2	6	5	1100
10	10	12	4.08	100	408.	$1\frac{1}{2}$	2	6	5	1200
8	12	12	5.87	100	587.	1	2 $\frac{1}{2}$	8	7	1375
9	12	12	5.87	100	587.	$1\frac{1}{2}$	2	8	7	1475
10	12	12	5.87	100	587.	$1\frac{1}{2}$	2	8	7	1600
12	12	12	5.87	100	587.	2	2 $\frac{1}{2}$	8	7	1750
10	14	12	8.00	100	800.	$1\frac{1}{2}$	2	10	8	2150
12	14	12	8.00	100	800.	2	2 $\frac{1}{2}$	10	8	2250
14	16	16	13.9	50	695.	2	3	12	10	3100
10	16	18	15.6	50	780.	$1\frac{1}{2}$	2	12	10	2800
10	18	18	19.8	50	990.	$1\frac{1}{2}$	2	12	10	3140
14	18	20	22.	50	1100.	2	3	12	10	3450



Penberthy



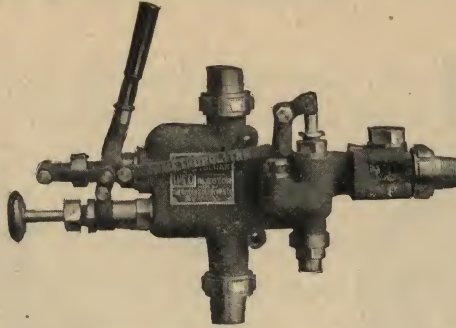
U. S.

Penberthy Automatic Injectors

Number	Price Each	Horse-Power Based on Ordinary Tubular Boiler	Horse-Power Based on 30 lbs. Water per Horse-Power per Hour	Pipe Connection, Inches	Capacity Gallons per Hour 1 to 3 ft. Lift, 60 to 85 lbs. Steam Pressure	
					Maximum	Minimum
O	15.00	3 to 6	4 to 8	1/2	60	40
OO	16.00	4 to 8	6 to 12	3/4	80	55
A	18.00	8 to 16	10 to 20	1	135	70
AA	20.00	12 to 22	15 to 30	1 1/4	180	100
B	25.00	17 to 32	22 to 45	1 1/2	260	140
BB	30.00	20 to 45	25 to 60	2	355	170
C	40.00	40 to 65	45 to 80	1	475	300
CC	45.00	45 to 80	50 to 100	1 1/4	600	350
D	55.00	50 to 100	60 to 135	1 1/2	800	425
DD	60.00	75 to 135	85 to 165	2	1000	525
E	75.00	100 to 180	125 to 235	2 1/2	1400	850
EE	90.00	115 to 225	150 to 320	3	1900	900
F	110.00	160 to 320	200 to 400	4	2400	1300
FF	125.00	200 to 400	250 to 500	5	3000	1600
G	150.00	300 to 500	325 to 600	6	3600	2000
GG	200.00	375 to 600	400 to 750	8	4200	2500

U. S. Automatic Injectors

Number	Price Each	Horse-Power Based on Ordinary Tubular Boiler	Horse-Power Based on 30 lbs. Water per Horse-Power per Hour	Pipe Connection, Inches	Capacity Gallons per Hour	
					Maximum	Minimum
00	13.00	1 to 3	1 to 4	1/2	36	20
0	14.00	3 to 6	4 to 8	3/4	65	35
1	16.00	4 to 8	6 to 12	1	90	55
2	18.00	8 to 16	10 to 20	1 1/4	135	65
3	20.00	12 to 22	15 to 30	1 1/2	180	100
4	25.00	17 to 32	22 to 45	2	260	140
5	30.00	20 to 45	25 to 60	2 1/2	355	170
6	40.00	40 to 65	45 to 80	1	475	300
7	45.00	45 to 80	50 to 100	1 1/4	600	350
8	55.00	50 to 100	60 to 135	1 1/2	800	425
9	60.00	75 to 135	85 to 165	2	1000	525
10	75.00	100 to 180	125 to 235	2 1/2	1400	800
11	90.00	115 to 255	150 to 320	3	1900	950
12	110.00	160 to 320	200 to 380	4	2400	1300
14	150.00	300 to 500	325 to 550	6	3600	2000



Metropolitan Injectors MODEL O

Size	Price	Size Pipe Con- nections, Inches	Size of Overflow, Inches	Capacity, Gallons per hour with 100 pounds Steam Pressure	Capacity, Gallons per hour with 175 pounds Steam Pressure	Horse-power for the ordinary Type of Boiler and Engine	Horse-power on a Basis of 30 lbs. Evaporation per H. P. per Hour
2½	18.00	1	1	130	175	8 to 15	12 to 20
4	20.00	1	1	180	220	15 to 20	20 to 28
5	25.00	1	1	260	300	20 to 30	28 to 40
6	30.00	1	1	365	415	30 to 45	40 to 55
7	40.00	1	1	525	600	45 to 65	55 to 80
8	45.00	1	1	625	720	65 to 80	80 to 110
9	55.00	1½	1	835	950	80 to 100	110 to 145
10	60.00	1½	1	1040	1195	100 to 130	145 to 180
11	75.00	1½	1½	1350	1550	130 to 170	180 to 235
12	90.00	1½	1½	1800	2070	170 to 230	235 to 300
13	110.00	2	1½	2350	2675	230 to 300	300 to 400
14	125.00	2	1½	2900	3275	300 to 375	400 to 500
15	150.00	2½	2	3600	3975	375 to 500	500 to 650
16	200.00	2½	2	4300	4750	500 to 650	650 to 800
17	250.00	3	2½	4900	5300	650 to 800	800 to 975
18	300.00	3	2½	5500	6100	800 to 1000	975 to 1250

Model O is a Double Tube Injector especially adapted for the larger Power Plant, and for all service too severe for the Automatic or Single Tube Type of Injector.
The Metropolitan Injector, Model O, will work at all steam pressures from 25 to 350 pounds. It will take water under a head or lift it 20 feet.
It puts water into the boiler at a higher temperature than any similar device.



H-D Ejectors

No.	Description	Price Each	Pipe Connections, Inches		Capacity, per Hour, with 50 lbs. Steam Pressure, Gallons
			Steam	Suction and Delivery	
1	Brass	8.00	¾	¾	250
2	Brass	10.00	1	1	500
3	Brass	15.00	1½	1½	960
4	Brass	20.00	1	1½	1300
5	Brass	25.00	1½	1½	2000
6	Iron Body	35.00	1½	2	4000
7	Iron Body	45.00	1½	2½	8000
8	Iron Body	55.00	2	3	11000
9	Iron Body	70.00	2½	4	15000
10	Iron Body	175.00	4	6	45000

Will lift water 25 feet at 50 pounds pressure. Will elevate water one foot for every pound of steam pressure. Nos. 6, 7, 8, and 9 made entirely of brass to order.



Model A



Model B

Blakeslee Jet Pumps

The best Cold Water Pump for filling tanks for stationary or portable steam engines; also highly recommended for use in mines, distilleries, salt works and similar places, and saves the expense of putting up and running an engine.

The pump may be put in a well or near a stream of water, a long distance from the boiler, and the steam carried to it in a pipe, thereby saving a great expense for putting up costly machinery to work a common pump in such a locality.

These pumps will lift 24 feet. They will elevate up to 100 feet, depending on lift and steam pressure.

Model A has brass union connections at each end, while Model B does not. Both models will do the same work.

Model B is shipped on all orders unless otherwise specified.

MODEL A

Size of Pump	$\frac{3}{4}$ "	1"	1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	2"	2 $\frac{1}{2}$ "	3"
Price	8.00	10.00	12.00	14.00	16.00	20.00	24.00
Suction Pipe	$\frac{3}{4}$ "	1"	1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	2"	2 $\frac{1}{2}$ "	3"
Discharge Pipe	$\frac{3}{4}$ "	1"	1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	2"	2 $\frac{1}{2}$ "	3"
Steam Pipe	$\frac{3}{4}$ "	1"	1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	2"	2 $\frac{1}{2}$ "	3"
Capacity per Minute, Gallons	8	15	20	30	40	50	60
Weight	4	6	8	12	16	24	33

MODEL B

Size of Pump	$\frac{3}{4}$ "	1"	1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	2"	2 $\frac{1}{2}$ "	3"	4"
Price	8.00	10.00	12.00	14.00	16.00	20.00	24.00	70.00
Suction Pipe	$\frac{3}{4}$ "	1"	1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	2"	2 $\frac{1}{2}$ "	3"	4"
Discharge Pipe	$\frac{3}{4}$ "	1"	1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	2"	2 $\frac{1}{2}$ "	3"	4"
Steam Pipe	$\frac{3}{4}$ "	1"	1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	2"	2 $\frac{1}{2}$ "	3"	4"
Capacity per Minute, Gallons	8	15	20	30	40	50	60	85
Weight	3	6	8	11	13	21	27	60



The 4-inch pump is furnished with flange connection on discharge end. The sizes of pipes given in these lists are for short lengths only (say 50 feet), sizes should be increased as length increases.

The capacities given above are when lifting 4 feet and elevating 4 feet. The capacity of a Jet Pump is decreased when the lift or elevation is increased. The temperature of the liquid pumped also affects the capacity.

Strainers For Injectors

Pipe Size	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	1"	1 $\frac{1}{2}$ "
Brass	.40	.40	.50	.60	.75

Long Fulcrum Oshkosh Patented Iron Lift Pumps and Single and Double-acting Force Pumps

Iron Cylinders "Oil Polished"

Brass Lined Cylinders "Seamless Brass Lining"

Brass Body Cylinders "Seamless Brass Shells"

Cylinders Equipped with either Common Leather Valve and Common Bucket or
with Oshkosh Patent Brass Valve and Oshkosh Patent Bucket;
with either Flush or Outside Caps

DESCRIPTION OF PATENTED FEATURES

The Long Fulcrum feature of the Oshkosh Pump and the Two Piece Bolted Bearer Top or Windmill Cap, are fully covered by Patent, and Pumps equipped with these features are without a doubt the easiest working on the market today.

Note from the illustrations that the Long Malleable Fulcrum extends through the Windmill Top, meets the resting place at the center of the body just above the spout, and is pivoted and secured by a Malleable Body Clamp and bolt to resting place. With this construction the leverage of the handle is self-adjusting, making a very easy working pump. The whole strain is on the resting brace, which is always directly under fulcrum and handle.

Note that all Windmill Tops are made in 2 pieces (R. & L.) and bolted together with 3 bolts. They are equipped with revolving wearing swivels, which can easily be replaced at a very small expense. No set screws used to secure bearer tops to base of pumps.

A very desirable feature of the Oshkosh Pump is that the Bearer Top, Fulcrum, Handle and Brace can be revolved around the pump and securely fastened in any position, which always bring the brace directly under the handle.

The fact that you don't see illustrated exactly what you require is no reason why we cannot furnish it. A complete catalog of variations in the pump line would require a very unwieldy and impracticable book.

Estimates and recommendations for special installations will be cheerfully furnished, and if the goods are properly set and cared for, we will guarantee all that we claim for them.

Open Top Iron Pitcher Spout Pumps

These pumps are arranged to be used either with lead or wrought iron pipe. Inside the nut are gas-pipe threads, into which iron pipe can be screwed when this connection is desired.

No. 1.....	4.25
No. 2.....	4.75
No. 3.....	5.25
No. 4.....	6.25

We make Nos. 1 and 2 with brass valve seat and pipe connection at a slight additional cost.

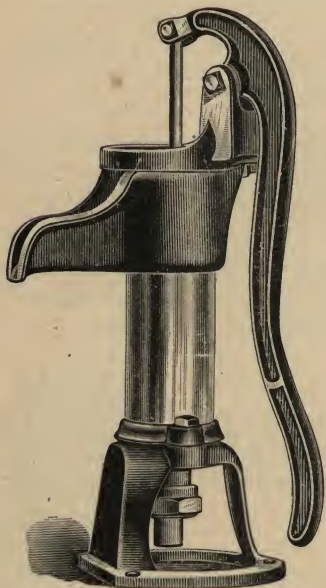
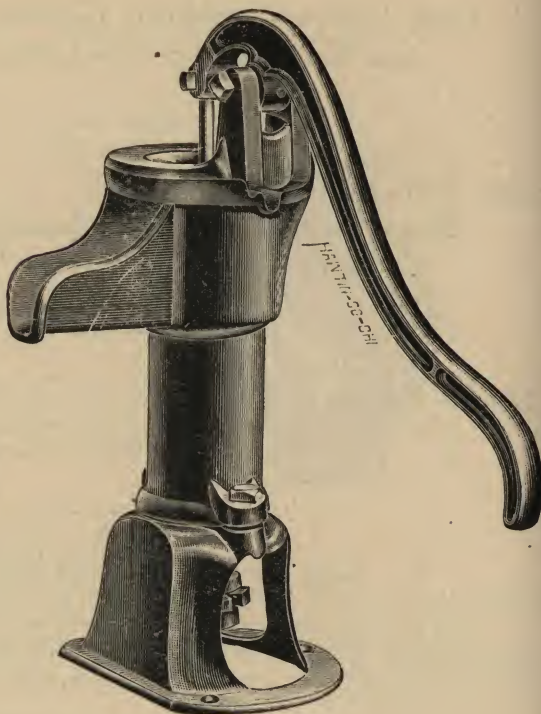


Fig. 58

Brass Body Pitcher Spout Pump

FIG. 58

Painted blue and gilt striped.

The body of this pump is made of seamless drawn brass tubing, and is fitted with brass cage and valve, and brass valve seat and pipe connection. We make this pump with 3-inch cylinder only.



Fig. 359

The cylinder of this pump is not screwed into the base as other pumps of similar design are made, but is held in place by two bolts, and can be taken apart as easily as a Pitcher Spout Pump. It is so constructed that by loosening the bolts the spout can be turned in any direction desired.

**Painted Blue and
Gilt Striped**

Oshkosh House Force Pumps

FIG. 359 AND FIG. 359½

Represent same pump with different equipment. Fig. 359 has an iron spout which can be removed and a bibb attached when Fig. 359½ is wanted, and does away with carrying two styles of pumps in stock. This pump has a brass body, and is fitted with brass cage and valve and brass valve seat.



Fig. 359½



Fig. 31

Small Open Top Anti-Freezing Set Length Pump

FIG. 31

Used for cisterns and shallow wells. It is made in four foot set lengths, and fitted with 3x10 cylinder with brass valve seat. The pipe screws into the standard at the spout.



Fig. 34

Small Open Top Anti-Freezing Pump Standard

FIG. 34

Same is very desirable for special length Set Length, and is the same standard as shown in Fig. 31 Set Length.



Fig. 31½

Open Top Set Length Pump

FIG. 31½

It is made in 4-foot set lengths, and fitted with 3x10 cylinder with brass valve seat. It has an adjustable base and brace, making it especially desirable for drive wells.

Improved Anti-Freezing Open Top Set Length Pump

FIG. 150

This pump is fully described below. Drip hole in all set lengths which makes them anti-freezing.

This is an exceptionally good pump and we consider it the best pump of this kind on the market today.



Fig. 150 Set Length



Fig. 150 Pump Standard

Improved Anti-Freezing Open Top Lift Pump Standard

FIG. 150

This pump is for shallow wells and cisterns. Same is provided with heavy fulcrum top, with three set screws, a large spout, heavy handle and strong brace, making it a solid, substantial, cheap pump, where an ordinary lifting pump is wanted. It has a six inch stroke.

This pump is tapped for $1\frac{1}{4}$ inch pipe underneath the spout, which prevents damage by frost. This Standard is a desirable pump where special length set length is wanted.

Patent Long Fulcrum Swell Body Set Length Lift Pump

FIG. 72

This is a four foot Set Length having a 3x10 iron cylinder with brass valve seat.



Fig. 72

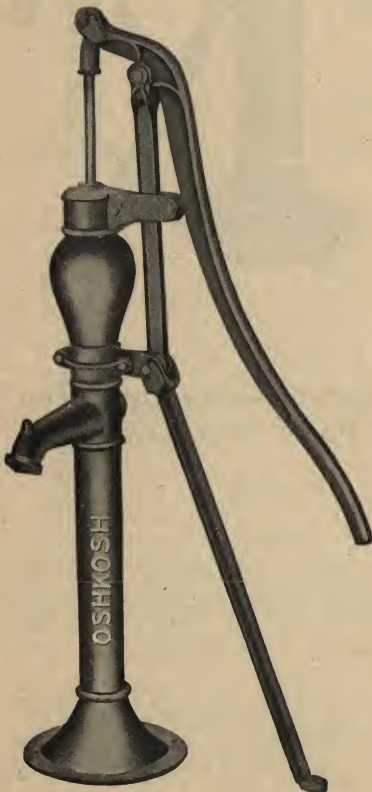


Fig. 73

Patent Long Fulcrum Swell Body Lift Pump Standard

FIG. 73

This is the same Standard that is used in the Fig. 72 Set Length. It has a bolted top.

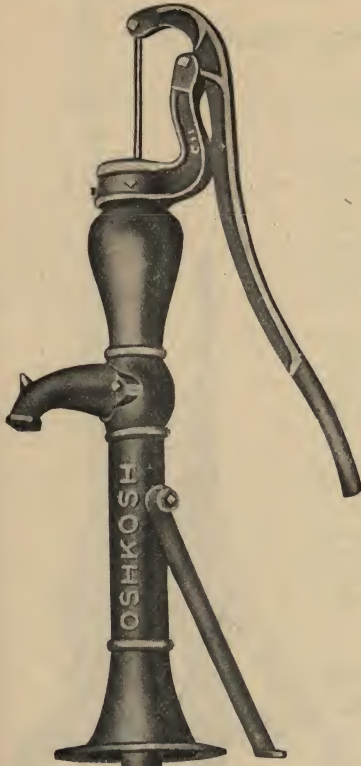


Fig. 160 Standard

Heavy Swell Body Lift Pump Standard

FIG. 160

The above Standard is a very desirable Pump for all ordinary purposes. It is handsome in appearance, strong and durable, and can be used in connection with large cylinders and deep wells.

Regularly tapped for 2" pipe. Can be furnished with straight or goose neck spout.



Fig. 160 Set Length

Heavy Swell Body Set Length Lift Pump

FIG. 160

This is an improvement over the straight body lift pumps in that it has a swell top or reservoir above the spout so large quantities of water can be pumped without danger of running over at top. It is regularly made in a set length with 2" pipe and 4x10 iron cylinder.

This Pump is a great favorite with stockmen, and is recommended to take the place of wood pumps.

Heavy Windmill Lift Pump Standard

FIG. 300

EQUIPPED WITH TWO-PIECE BEARER BOLTED TOP WITH REVOLVING WEARING SWIVELS

We make this pump to accommodate trade who have a demand for cheaper grade pumps. The working parts are the same as the Standard for the Fig. 300 Set Length.

The pump is tapped for 2 inch pipe just below the spout, and furnished with combination bushing so that $1\frac{1}{2}$ inch and $1\frac{1}{4}$ inch pipe can be used when desired. Stroke is 6 inch, handle is extra heavy, complete with brace. This Standard is desirable where special length Set Lengths are wanted.

Heavy Windmill Top Set Length

FIG. 300

Is the same in every particular as the Standard for the Fig. 300 Pump shown herewith. Drip hole in all set lengths, which makes them anti-freezing.

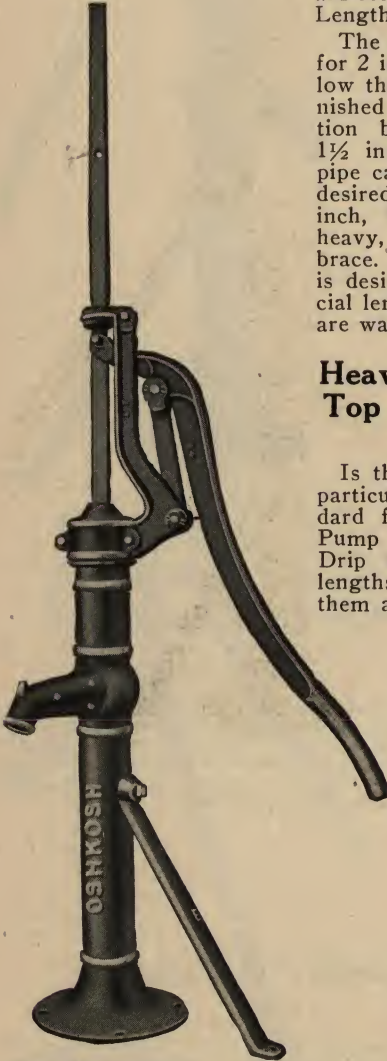


Fig. 300 Standard



Fig. 300 Set Length

This is an exceptionally good pump and we consider it the best of its kind on the market today.



Fig. 318

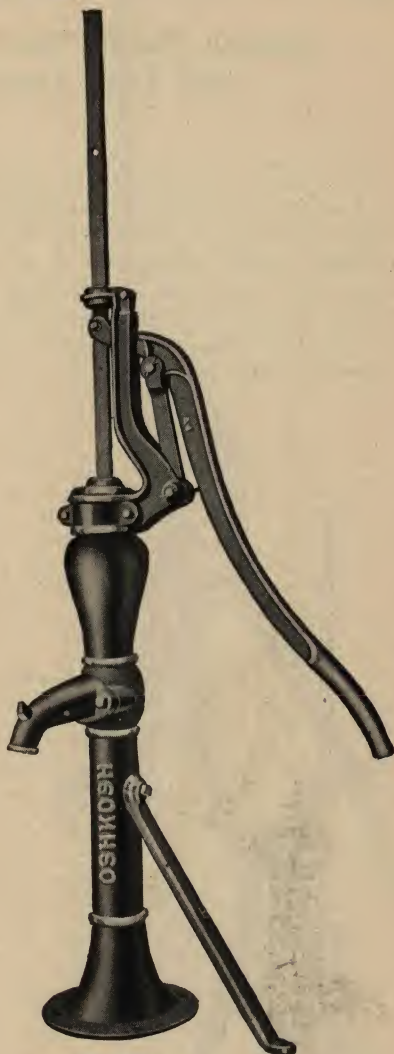


Fig. 208

Oshkosh Long Fulcrum Swell Body Lift Pump

FIG. 318

This pump is entirely new in design and construction, having a very heavy handle with the shortest leverage of any pump made. The fulcrum extends through the windmill top or guide and reaches to the center of the pump, and is pivoted to the same pin that holds the brace. The windmill top, fulcrum, handle and brace, can be revolved around the pump and securely fastened in any position desired, which always brings the brace directly under the handle. This is without exception the easiest working and strongest Lift Pump on the market. Notice that the windmill top is equipped with revolving wearing swivels at both ends, allowing the rod to turn freely therein.

These pumps are tapped 2 inches and furnished with a combination bushing so that $1\frac{1}{2}$ inch or $1\frac{3}{4}$ inch pipe can be used. They have adjustable stroke, and either plain or goose neck bolt on spout.

Oshkosh Short Fulcrum Swell Body Lift Pump

FIG. 208

This pump is the same as Fig. 318 with the exception of fulcrum and handle.

Fig. 208, Lift Pump, bolt on spout, 6 inch stroke.

Fig. 209, Lift Pump, bolt on spout, with adjustable 6, 8 and 10 inch stroke, otherwise as shown in cut of Fig. 208.

Either plain or goose neck spouts are furnished.

Oshkosh Patent Swell Body Lift Pump Standard with Long Fulcrum, Adjustable Stroke

FIG. 37

For tubular wells and heavy stock work. It is without exception the heaviest and best made lift pump on the market. It has adjustable handle, giving a 6, 8 or 10 inch stroke, but can be made with plain 6 inch handle if desired. It is tapped for either 2 or 2½ inch pipe. Made with revolving swivel in bearer top.

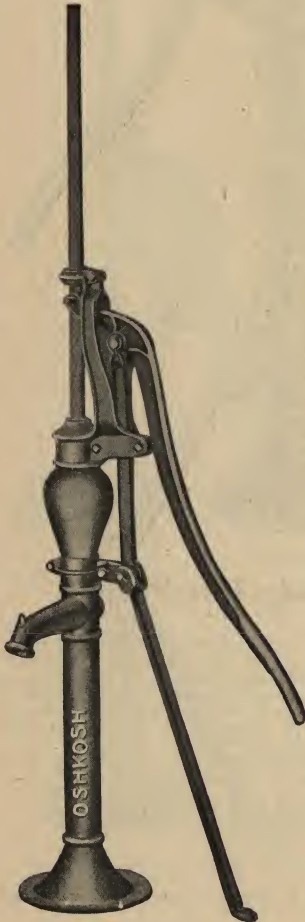


Fig. 33

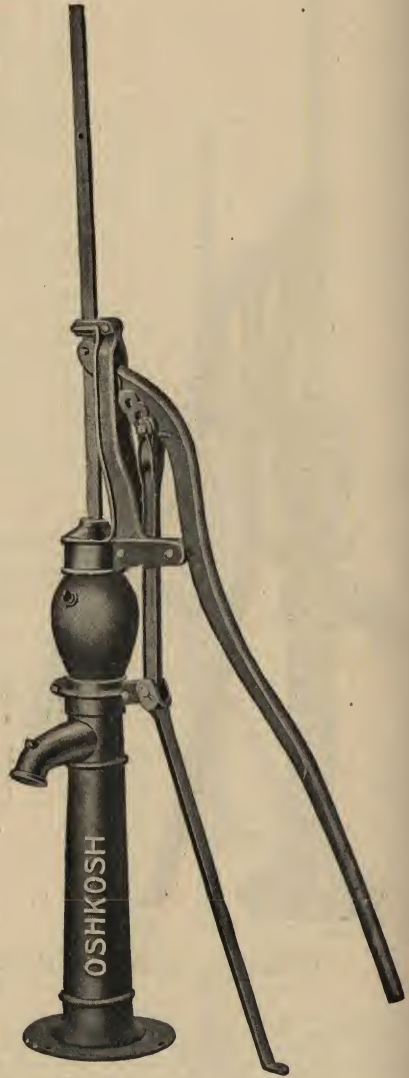
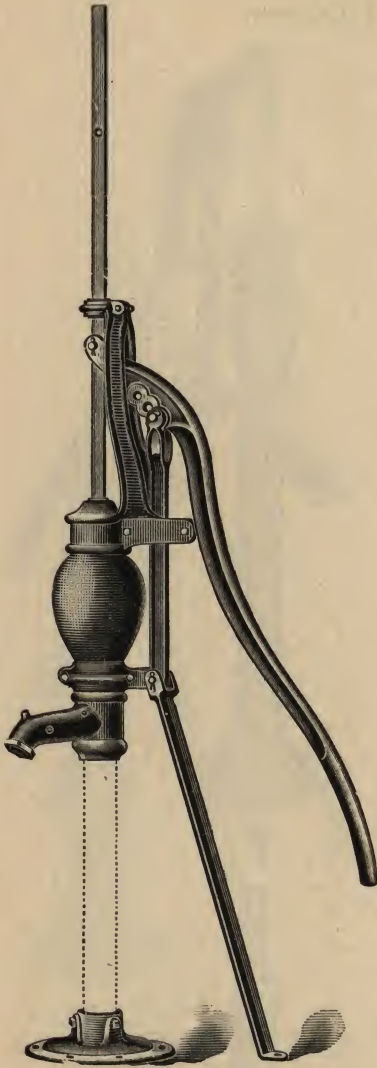
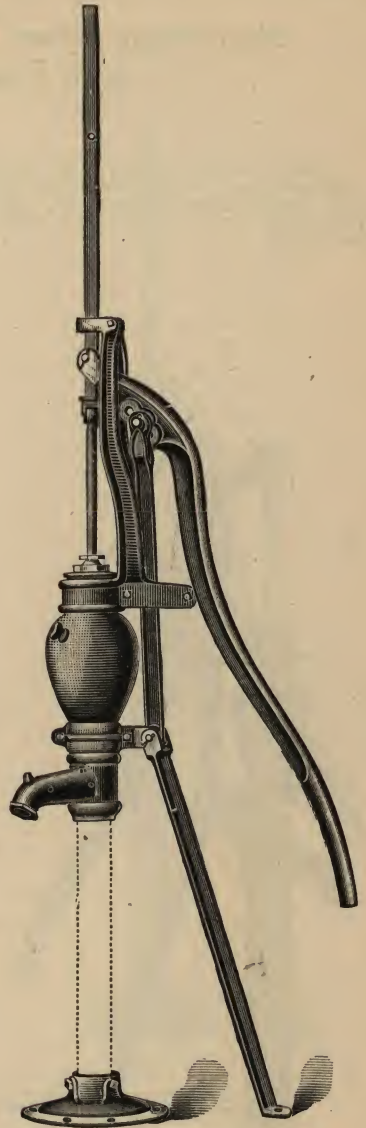


Fig. 37

Swell Body Lift Pump Standard with Long Fulcrum

FIG. 33

Is similar in design to Fig. 37, but is smaller and lighter in weight. It is the best light weight lift pump made. It is tapped for 1¼ inch pipe only.

Fig. 43 $\frac{1}{2}$ Fig. 44 $\frac{1}{2}$

Oshkosh Patent Lift Pump Standard

FIG. 43 $\frac{1}{2}$

This lift pump is designed especially for tubular wells and is a great favorite with tubular well men. It has a very heavy top, fitted with our Patent Long Fulcrum and brace, and adjustable handle. It is tapped just below the spout for 3 inch pipe and bushed to 2 inch, and is furnished with an adjustable base, making it very convenient in fitting to the platform. Made with revolving swivel in bearer top.

Oshkosh Patent Force Pump Standard

FIG. 44 $\frac{1}{2}$

Is the same as 43 $\frac{1}{2}$, except it is a force pump head and has a back outlet which is tapped for 1 $\frac{1}{4}$ inch pipe. It is tapped below the spout for 3 inch pipe and bushed to 2 inch.

Swell Body Hand Top Set Length Force Pump with Patent Long Fulcrum

FIG. 79

Made in 4 foot set with 3x10 iron cylinder with brass valve seat. It has 1 inch back outlet and is a very desirable pump for hand use. This pump will pump more water than any other pump of its size and weight.



Fig. 40



Fig. 79

Light Weight Swell Body Force Pump Standard Hand Top, Long Fulcrum

FIG. 40

With long fulcrum and revolving brace. It has less friction, is better braced, and works easier than any other light weight hand force pump on the market. It is made with a back outlet tapped for 1 inch pipe. Hose connection is shipped with each pump. It is made only in 6-in. stroke, and only for 1½ inch pipe.



Fig. 36



Fig. 32

Oshkosh Patent Tubular Well and Stock Force Pump Standard

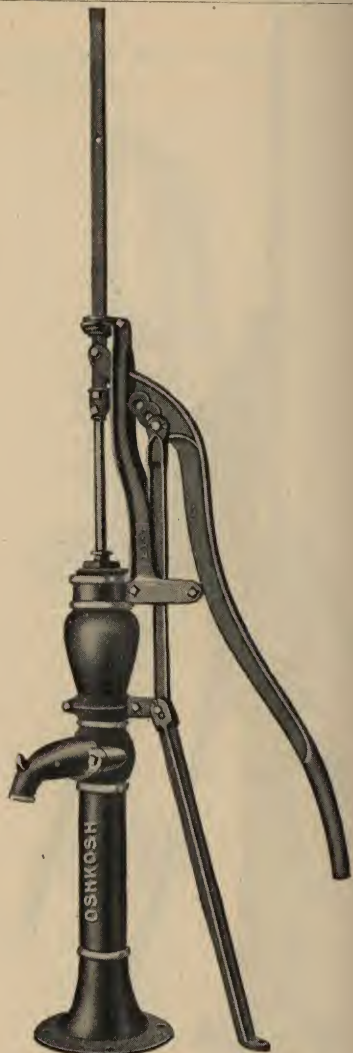
FIG. 36

Has an adjustable handle by means of which the pump can be adjusted so as to give a 6, 8 or 10 inch stroke. It is the same in every respect as Fig. 3133, except that it is much larger and heavier, and is tapped for either 2 or 2½ inch pipe as desired. The hole through the top is large enough to easily remove a 2½ inch tubular well bucket. It has an extra large spout, making it a very desirable stock pump where a large amount of water is required. Can be used for 1½ inch or 1¼ inch pipe by reducing. Made with revolving swivel in bearer top.

Oshkosh Patent Light Force Pump Standard

FIG. 32

It is the same in every respect as Fig. 3113, except that it is smaller and weighs less, and is tapped for 1½ inch pipe only. The back outlet is tapped for 1 inch pipe; furnished with air screw in air chamber. Hose connection goes with each pump free of charge.

Fig. 311 $\frac{3}{4}$ Fig. 313 $\frac{3}{4}$

Oshkosh Patent Force Pump Standard

FIG. 311 $\frac{3}{4}$

Has 6 inch stroke and malleable iron fulcrum. The windmill top, fulcrum, handle and brace can be revolved around the pump, and securely fastened in any position desired, which always brings the brace directly under the handle. This is without exception the easiest working and strongest deep well force pump on the market. To be tapped 2 inch and furnished with combination bushing so $1\frac{1}{2}$ or $1\frac{3}{4}$ inch pipe can be used.

All Force Pump Standards are furnished with back outlet and hose connection, and with either plain or goose neck spout. Made with revolving swivel in bearer top.

Oshkosh Patent Force Pump Standard with Bolt on Spout

FIG. 313 $\frac{3}{4}$

With windmill top. The same in every respect as Fig. 311 $\frac{3}{4}$, with the exception of an adjustable handle, by means of which the pump can be adjusted so as to give a 6, 8 or 10 inch stroke.

Oshkosh Short Fulcrum Force Pump Standard With Bolt on Spout

FIG. 8



Fig. 8. Plain or Goose Neck
"Bolt on Spout"

It has a swelled body with brass air screws, detachable polished piston rod, brass gland for stuffing box, and is provided with $1\frac{1}{4}$ inch back outlet and hose connection.

The windmill top, fulcrum and handle can be revolved around the pump to any desired position, and securely fastened by tightening the 3 bolts in bearing top.

For Hydrant shut-off and Cock Spouts we make a small extra charge. See price list.

Fig. 8, Force Pump Standard, 6 inch stroke, with either Plain or Goose Neck Spout.

Fig. 218, Force Pump Standard, with adjustable 6, 8 and 10 inch stroke, otherwise same as shown in cut Fig. 8, with Plain or Goose Neck Bolt on Spout.

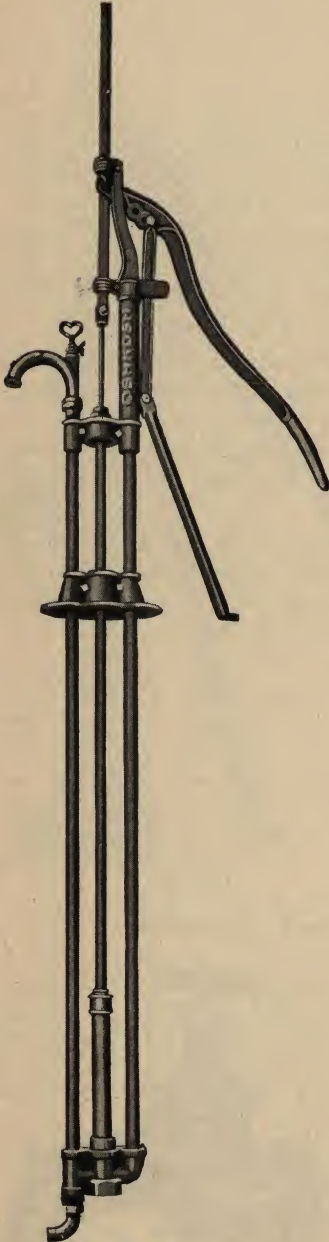
Hydrant Spout

Can be attached to any of our bolted spout pumps at a small extra charge.



Double Acting Three-way Force Pump

FIG. 330



It is made from 1 inch pipe and has heavy bearer top, adjustable stroke handle, long malleable Fulcrum and extra heavy brace; the base is adjustable which makes it convenient in fitting to the platform. The top cylinder and lower plunger valves can be removed without taking out a bolt or disturbing the platform of well, making it the easiest Three Way Pump to repair on the market.

Made with revolving wearing swivels in bearer top. Bearer top is in two pieces bolted together.

Upper cylinder is 1 inch brass tubing, and the pump is made for either 2 inch or 2½ inch pipe.

The hydrant shut-off is a simple and substantial device, and gives perfect satisfaction. Hose connection free with each pump.

Fig. 330

Oshkosh Patent Double Acting Force Pump

FIG. 17½



This pump is entirely new in design and construction, having a heavy adjustable handle with the shortest leverage of any pump made. The Malleable Fulcrum extends through the windmill top or guide and reaches to the centre of the pump, and is pivoted on the same pin that holds the brace. The windmill top, fulcrum, handle and brace can be revolved around the pump and securely fastened in any position desired, which always brings the brace directly under the handle. This is without exception the easiest working and strongest double acting force pump on the market. It is fitted with a 1 inch upper brass cylinder, with brass plunger, and is especially valuable because of its simplicity, durability and ease of operation. It has an exceptionally heavy base and handle, and one of the largest air chambers used on any double acting force pump in the market.

Note this pump has revolving wearing swivels in bearer top. Bearer top is made in two pieces and bolted together. Pump is made for 2 inch pipe and bushed to 1¼ inches.

The hydrant shut-off is a simple and substantial appliance, and gives perfect satisfaction. Hose connections free with each pump.

Fig. 17½

Repairs For Iron Pumps

CAPS OR BEARER TOPS

C. 8. Fig. 40, 79	1.10
C. 5. Fig. 31, 31½, 34	1.50
C. 11. Fig. 150	1.75
R. & L. 7½. Fig. 208, 300 (6 inch stroke)	3.00
R. & L. 6½. Fig. 209, 300 (10 inch stroke)	3.00
R. & L. 8½. Fig. 218	3.00
R. & L. 7. Fig. 8	3.00
R. & L. 11½. Fig. 311½	3.00
R. & L. 13½. Fig. 313½	3.00
R. & L. 37. Fig. 318, 37	3.00
R. & L. 330. Fig. 330	7.30
R. & L. 3. Fig. 17½	3.00
R. & L. 32. Fig. 32	3.00
R. & L. 33. Fig. 73, 72	1.50
R. & L. 36. Fig. 36	3.00
R. & L. 5. Fig. 33	3.00

FULCRUMS

B. 8. Fig. 208, 8, 300 (6 inch stroke)	.75
B. 9. Fig. 209, 218, 300 (10 inch stroke)	1.00
B. 3. Fig. 318, 17½, 40, 79, 32, 37	1.50
B. 5. Fig. 330, 36, 313½	1.50
B. 2. Fig. 73, 72, 33	1.50
B. 12. Fig. 311½	1.50

HANDLES

A. 5. Fig. 31, 31½, 34	1.75
A. 11. Fig. 150	1.75
A. 9. Fig. 209, 218, 318, 330, 300, 36, 37, 313½ (10 inch stroke)	2.50
A. 4. Fig. 8, 300, 40, 79, 32, 73, 72, 33 (6 inch stroke)	2.00
A. 2. Fig. 311½	2.00

BRACES

B. Fig. 31. Fig. 150, 31½, 208, 209, 218, 8, 300, 37	.75
F. 1. Fig. 318, 40, 79, 32, 73, 72, 33, 311½, 313½	1.25
F. 2. Fig. 17½, 36, 32	1.25

SPOUTS

E. 2. Spout. Fig. 17½, 330	2.50
E. 6. Spout. Cock Spout	7.00
E. 7. Spout. Hydrant Spout	7.00
E. 10. Plain Spout	1.75
E. 9. Goose Neck Spout	1.75

PUMP BASES

Fig. 17½	5.50
Fig. 150, Fig. 300	5.50
Fig. 31, 34	3.70
Fig. 31½	3.70
Fig. 8, 218, 311½, 313½	6.50
Fig. 318, 208, 209, 207	6.50
Fig. 32, 40, 79	4.60
Fig. 33, 72, 73, 77	4.60
Fig. 43½	6.50
Fig. 44½	6.50
D. 15 for Fig. 31½	1.85
D. 14 for Fig. 43 and Fig. 44	2.80
D. 61 for Fig. 43½ and Fig. 44½	2.80
R. & L. 313 for Fig. 330	2.80

Repairs Brass Body, Fig. 59, House Force Pumps

Handle	1.00
Base	2.20
Cap for Base	1.00
Fulcrum	1.00
Top or Air Chamber	2.50
Cock Eye .....	.40
Nickle Plated Piston Rod .....	.40
Nickle Plated Cylinder	3.00
Nickle Plated Piston Rod Gland .....	.35
Brass Cap Chain .....	.35
Nut or B. Lead Pipe Conn. ....	.35
Iron Spout for 359 .....	.50

OTHER REPAIRS

Upper Brass Cylinder Snell for Fig. 330 and Fig. 17½ Pumps	4.00
No. 213 Handle Pin .....	.20
No. 214 Two Set Screw Cplgs. or One Set Screw Cplg. ....	.40
Fulcrum Band for Long Fulcrum Pumps, all styles	1.00
1 inch Ells for Figs. 330 and 17½ Pumps	1.00
Swivel Rod Guides .....	.35
G. 8 Elbows for Fig. 330 Pump, tapped 2½ inch Pipe	4.00
G. 6 Elbows. Fig. 17½ Pump, tapped 2 inch Pipe	4.00
6 inch Stroke Round Piston Rod	1.00
10 inch Stroke Round Piston Rod	1.25
6 inch Stroke Flat Piston Rod Lift	1.25
10 inch Stroke Flat Piston Rod Lift	1.50
6 inch Stroke Windmill Rod Force	1.00
10 inch Stroke Windmill Rod Force	1.25
Brass Air Screws .....	.35
Brass Gland	1.00
Cock Eyes for all sizes .....	.35
Brass Gland and Thumb Screw Fastener for Shut-off Rod	1.25
Stuffing Boxes, "Both Sizes"	1.00

Pitcher Pump Repairs

Handles	1.00
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FULCRUMS OR BEARER TOPS

No. 1, 275
No. 3, 4	1.00

BASES

No. 1	2.00
No. 2	2.20
No. 3	2.50
No. 4	3.00

IRON PIPE NUTS

No. 1, 2, 3 .....	.70
No. 4 .....	.90

BRASS TUBE FOR IRON OR LEAD PIPE

No. 1, 2, 3 .....	.40
No. 4 .....	.50

PLUNGERS, COMPLETE

No. 1	1.00
No. 2	1.25
No. 3	1.50
No. 4	1.75

CYLINDERS

No. 1	2.00
No. 2	2.40
No. 3	2.60
No. 4	2.75

Cylinder Repairs

BRASS LINED AND IRON CYLINDER SHELLS

BRASS BODY CYLINDER SHELLS

2 x10.....	1.50	2 x12.....	2.25	2 x14.....	2.60	2 x16.....	2.80
2½x10.....	1.50	2½x12.....	2.25	2½x14.....	2.60	2½x16.....	2.80
2¾x10.....	1.60	2¾x12.....	2.45	2¾x14.....	2.75	2¾x16.....	3.00
2¾x10.....	1.80	2¾x12.....	2.60	2¾x14.....	2.85	2¾x16.....	3.30
3 x10.....	2.00	3 x12.....	2.75	3 x14.....	3.00	3 x16.....	3.55
3½x10.....	2.25	3½x12.....	3.00	3½x14.....	3.30	3½x16.....	3.80
3¾x10.....	2.50	3¾x12.....	3.20	3¾x14.....	3.55	3¾x16.....	4.05
4 x10.....	3.25	4 x12.....	3.85	4 x14.....	4.10	4 x16.....	4.30

CAPS

Top Caps, 2 to 3 Inches.....	.75
Top Caps, 3½ to 3¾ Inches.....	1.00
Top Caps, 4 Inches.....	1.25
Bottom Caps, 2 to 3 Inches.....	1.00
Bottom Caps, 3½ to 3¾ Inches.....	1.25
Bottom Caps, 4 Inches.....	1.50

PLUNGERS COMPLETE

	Brass Cage and Valve, Iron Follower	All Brass	All Iron
No. A—2 to 3 Inches.....	1.60	2.50	1.25
No. A—3½ to 3¾ Inches.....	2.25	2.75	1.50
No. A—4 Inches.....	2.75	3.25	2.00
No. B—2 to 3 Inches.....	2.10	3.00	1.75
No. B—3½ to 3¾ Inches.....	2.75	3.75	2.00
No. B—4 Inches.....	3.25	4.50	2.50

A—Represents one Leather Plunger
B—Represents two Leather Plungers.

OSHKOSH PATENT BUCKETS

See List for Brass Cage and Valve, Iron Follower, and add extras as follows:

2-leather Oshkosh Bucket, add 5c net extra.
3-leather Oshkosh Bucket, add 15c net extra.
4-leather Oshkosh Bucket, add 25c net extra.

PLUNGER YOKES OR CAGES

	Brass	Iron
2 to 3 Inches.....	.75	.50
3½ to 3¾ Inches.....	1.00	.60
4 Inches.....	1.25	.85

PLUNGER VALVES OR POPPETS

Iron.....	.25
Brass.....	.50
Valve Weight.....	.25

PLUNGER FOLLOWERS

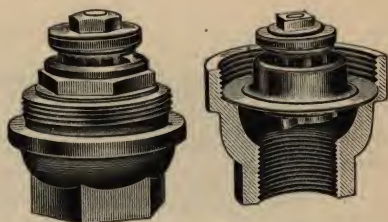
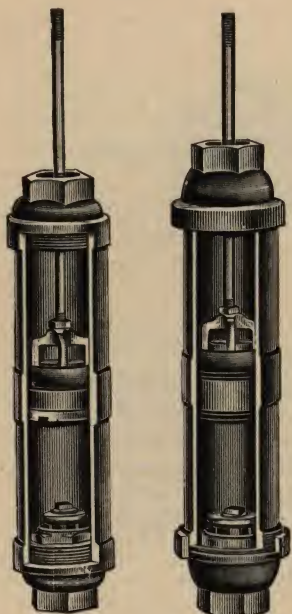
	Brass	Iron
10 Inches, 2 to 3 Inches.....	1.50	.50
10 Inches, 3½ to 3¾ Inches.....	1.75	.60
10 Inches, 4 Inches.....	2.00	.85
12 Inches, 2 to 3 Inches.....	2.00	1.00
12 Inches, 3½ to 3¾ Inches.....	2.50	1.15
12 Inches, 4 Inches.....	3.00	1.25
14 Inches, 2 to 3 Inches.....	2.50	1.00
14 Inches, 3½ to 3¾ Inches.....	3.00	1.25
14 Inches, 4 Inches.....	3.50	1.50
16 Inches, 2 to 3 Inches.....	3.00	1.25
16 Inches, 3½ to 3¾ Inches.....	3.50	1.50
16 Inches, 4 Inches.....	4.00	2.75

LOWER VALVES, COMPLETE

2 to 3 Inches.....	.65
3½ to 3¾ Inches.....	.75
4 Inches.....	.85

OSHKOSH PATENT CHECK VALVE

2 and 2½ Inch Oshkosh Check Valve.....	1.60
2½ Inch Oshkosh Check Valve.....	1.80
2¾ and 3 Inch Oshkosh Check Valve.....	2.00
3½ Inch Oshkosh Check Valve.....	2.40
3¾ Inch Oshkosh Check Valve.....	2.80
4 Inch Oshkosh Check Valve.....	3.20



Cuts show sectional view of the Oshkosh Patent Check Valve, in Outside Cap, also in Flush Cap Cylinder. The valve poppet and the body of the valve are made from brass; the poppet is fitted with a round edge rubber valve which seats in the beveled seat of valve frame, making the most perfect and most durable Check Valve in the market.

We fit this valve to any cylinder we make—Iron, Brass Lined, Brass Body, with either Flush or Outside Caps. It can be used to repair old cylinders of other makes if they have Outside Caps.

Oshkosh Patent Check Valve

The Oshkosh Patent Check Valve is a heavy brass valve with beveled seat. The round edge rubber-faced poppet fits the seat perfectly. It has a vertical and rotary action which prevents uneven wear and any possibility of sand or other foreign substance lodging on the bevel seat. It always seats perfectly.

It is extra heavy and will stand up under the most severe strain, consequently is adapted for deep well work. The removable valve seat cannot leak, as it is securely held in place between two leather gaskets.

These valves may be used to repair other makes of cylinders by reversing the caps, or using a top cap on the lower end of cylinder.

Give them a trial and be convinced.



Two Leather Oshkosh Patent Bucket



The two leather Oshkosh Patent Bucket, as shown in the cut, has a round edge rubber faced brass poppet which fits the beveled seat perfectly, making a most perfect and non-leaking bucket. A cylinder equipped with this Patent Oshkosh Bucket is well worth the small additional cost over the price of a cylinder with the regular bucket.

We furnish those with two, three and four leathers when desired.

See note below Cylinder Lists for additional cost of Oshkosh Buckets.

Cylinders

As is well known, the Cylinder is the heart of the pump, and no pump can give satisfaction with a poorly constructed or defective cylinder, great numbers of which are thrust upon the market every year and found to be dear at any price.

A pump outfit, to work properly and satisfactorily, must have a cylinder that is mechanically perfect in every particular, the top or standard being of secondary import.

Oshkosh Cylinders meet these conditions.

IRON CYLINDERS

It is impossible to cast a Cylinder perfectly round or spherical, so that after casting the Cylinder must be bored or turned so as to be perfectly true; then it is put in a machine and ground or polished to obliterate the marks left by the boring tool and to smooth it up so that the plunger will work properly and with the least possible wear. When this boring and polishing is not done properly, the leathers wear out very rapidly and the dealer's reputation for first-class goods suffers in consequence.

Oshkosh Cylinders are oil polished perfectly smooth.

BRASS LINED CYLINDERS

One of the prime causes of the plunger leather wearing out is from rust in the Cylinder, and to overcome this objection the Brass Lined Cylinder was introduced about 1876, and met with a success unparalleled in the pump line.

The shell of a Brass Lined Cylinder is identical to the Iron Cylinder, and a piece of seamless drawn polished brass tube is firmly pressed into the iron shell and expanded at both ends so as to hold it in place. The shell affords an excellent protection to the brass tube and renders it almost indestructible.

BRASS TUBE CYLINDERS

The Brass Tube Cylinder has, in a great measure, given way to the Brass Lined Cylinder, but is still used in some localities.

It is made of heavy seamless drawn polished brass tube, but is not as strong as the Brass Lined Cylinder, as it lacks the protection of the iron shell.

All our Brass Body Cylinders are highly polished on the outside, which lends greatly to their appearance.

LEATHER

By far too little importance is attached to the Leather in a Cylinder, when in point of fact the working of the Cylinder depends very largely on the Leather, and all leather will not, by any means, make suitable pump leather.

There are dozens of large leather concerns in the country whose scrap or clippings are bought up and manufactured or cut into pump leathers, thus making a very cheap but inferior grade.

We purchase all our Leather in full sides and from these sides cut our plungers, valves, washers, etc. Our Leather is made by a tannery that has made a specialty of pump leather for thirty years past, and as a consequence it is not a cheap Leather, but positively is a durable Leather and eminently suited to the purpose.



Pump Cylinders

Fitted with Common Leather or Oshkosh Brass Valves.

When ordering give length and diameter of cylinder, also style of Valve and Bucket wanted and whether with outside or flush Caps.

Flush Cap Cylinders are made only 12 inches and longer.

All cylinders are fitted with two leather plungers when desired.

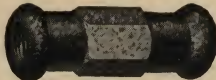
Size	Iron			Brass Lined and Brass Body				
	Iron Plunger	Brass Cage and Valve, Iron Follower	Iron Plunger, with Oshkosh Brass Valves	Brass Cage and Valve, Iron Follower, Iron Caps	Brass Cage and Valve, Iron Follower with Oshkosh Brass Valves, Iron Caps	All Brass Plunger, with Common Leather Valves, Iron Caps	All Brass Plunger, with Oshkosh Brass Valves, Iron Caps	All Brass Plunger, with Common Leather Valves, Brass Caps
2 x10	3.75	4.50	5.50	7.50	8.70	8.00	9.20	10.75
2½x10	4.00	4.75	5.75	7.75	8.95	8.25	9.45	11.00
2¾x10	4.35	5.35	5.80	8.00	9.20	8.50	9.70	12.25
2½x10	4.70	5.70	6.20	8.50	9.70	9.00	10.20	12.75
3 x10	5.00	6.25	6.85	9.00	10.45	9.75	11.20	13.50
3½x10	6.00	7.50	7.85	9.75	11.20	10.50	11.95	14.75
3¾x10	7.00	8.75	8.85	10.50	11.95	11.50	12.95	16.75
4 x10	9.00	11.50	11.70	13.00	14.70	15.50	17.20	21.50
2 x12	5.50	6.25	7.00	8.00	9.20	9.25	10.45	11.25
2½x12	5.75	6.50	7.25	8.25	9.45	9.50	10.70	11.50
2¾x12	6.00	7.00	7.50	8.50	9.70	9.75	10.95	12.75
2½x12	6.50	7.50	8.00	9.00	10.20	10.50	11.70	13.25
3 x12	7.00	8.25	8.85	9.50	10.95	11.00	12.70	14.00
3½x12	8.00	9.50	9.85	10.25	11.70	12.00	13.45	15.25
3¾x12	9.00	10.75	10.85	11.25	12.70	13.75	15.20	17.50
4 x12	11.50	14.00	14.20	14.25	15.95	18.00	19.70	22.50
2 x14	6.00	6.75	7.50	8.50	9.70	9.75	10.95	13.00
2½x14	6.25	7.00	7.75	9.00	10.20	10.25	11.45	13.50
2¾x14	6.50	7.50	8.00	9.25	10.45	10.50	11.70	14.75
2½x14	7.00	8.00	8.50	9.75	10.95	11.25	12.45	15.50
3 x14	7.50	8.75	9.35	10.25	11.45	11.75	13.20	16.25
3½x14	8.75	10.25	10.60	11.00	12.45	12.75	14.20	17.75
3¾x14	10.00	11.75	11.85	12.25	13.70	14.75	16.20	21.00
4 x14	13.00	15.50	15.70	15.75	17.45	19.00	20.70	26.50
2 x16	6.00	6.75	7.75	9.00	10.20	10.50	11.70	13.75
2½x16	6.50	7.25	8.00	9.75	10.95	11.25	12.45	14.50
2¾x16	7.00	8.00	8.50	10.25	11.45	11.75	12.95	15.50
2½x16	7.50	8.50	9.00	10.75	11.95	12.25	13.45	16.50
3 x16	8.00	9.25	9.85	11.25	12.70	12.75	14.20	17.25
3½x16	9.75	11.25	11.35	12.00	13.45	14.00	15.45	19.00
3¾x16	11.25	13.00	13.10	13.50	14.95	16.00	17.45	22.25
4 x16	14.50	17.00	17.20	17.50	19.20	20.50	22.20	28.00
2 x20	7.50	8.25	9.25	10.00	11.20	11.50	12.70	14.75
2½x20	8.00	8.75	9.50	11.25	12.45	12.75	13.95	16.00
2¾x20	8.50	9.50	10.00	12.25	13.45	13.50	14.70	17.75
2½x20	9.00	10.00	10.50	12.75	13.95	14.25	15.45	18.50
3 x20	9.50	10.75	11.35	13.25	14.70	14.75	16.20	19.25
3½x20	11.50	13.00	13.35	14.00	15.45	16.00	17.45	21.00
3¾x20	13.50	15.25	15.35	16.25	18.05	19.00	20.45	25.25
4 x20	17.00	19.50	19.70	21.00	22.70	24.00	25.70	31.50

N. B. { 2-leather Oshkosh Bucket, add 5 cents net extra.
 { 3-leather Oshkosh Bucket, add 15 cents net extra.
 { 4-leather Oshkosh Bucket, add 25 cents net extra.



Red Jacket Wood Rod Couplings

No. 1. 3 Rivets, for 1½ inch Rod.....per set	Plain	Galvanized
	.20	.25



Regular



Reducer

Pump Rod Couplings

FOR STEEL ROD

Size Rods, Inches	Threads to the Inch	Galvanized, per Pound	Plain, per Pound	Brass, Hexagon Only, per Pound
3/8 x 7/8 1/2 x 1 1/8 3/4 x 1 1/4 1 x 1 1/2 1 1/4 x 1 3/4	14, regular	.20	.16	.50
	16, to order	.20	.16	.50
	12 x 14	.20	.16	.50
	12	.20	.16	.50
	12	.20	.16	.50

Reducer Couplings

FOR ½-INCH AND ¾-INCH PIPE AND STEEL PUMP RODS

Trade No.	Size Rods, Inches	Price, Galvanized per Pound	Price, Plain per Pound
438	3/8	.30	.25
439	1/2	.30	.25

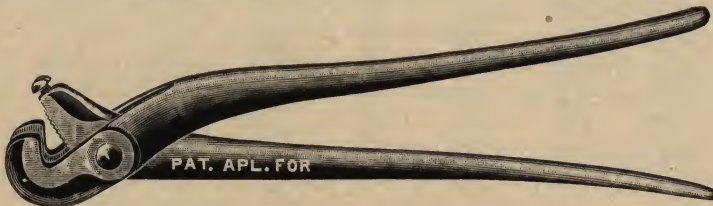
Galvanized Steel Pump Rod

Size, Inches	Weight per 100 Feet, Pounds	Price, per Pound
3/8	37½	.10
1/2	51	.10
3/4	67	.10



Pump Rod Stocks and Dies

Double Stock with one Die, each 3/8 14 and 7/8 12 complete.....	3.00
Single Stock with one Die, 3/8 14 complete.....	1.70
Single Stock with one Die, 7/8 12 complete.....	1.90
Single Stock with one Die, 1 1/2 12 complete.....	2.20



Never Slip Rod Tongs

Price each.....	1.00
-----------------	------



Red Jacket Ball Float Valves

Size -----	$\frac{3}{4}$	1	$1\frac{1}{2}$	$1\frac{3}{4}$
Price -----	1.25	1.35	1.50	3.00

Made with Two-Length Levers—12-inch and 18-inch. In ordering, state which is wanted.



Diamond Float Valves

Size -----	$\frac{3}{4}$	1	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{2}$	3	4
Price -----	1.25	1.39	1.50	3.00	5.00	7.50	10.00	22.00



Tank Float



Water Conductor

Tank Floats

Size -----	12x3 Galvanized	14x3 Galvanized	16x4 Galvanized	$9\frac{1}{2}$ x2 $\frac{3}{4}$ Copper	12x3 Copper
Price -----each	.50	.80	1.40	1.10	1.50

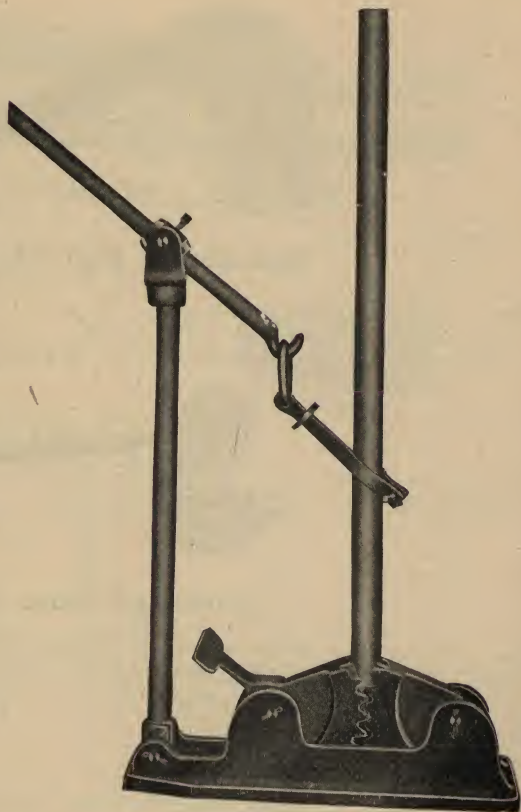
Water Conductors

Our Spout Conductor has a larger and better shaped bowl, preventing entirely the splashing of water over the top. It is tapped regularly for $1\frac{1}{2}$ " pipe but is heavy enough to tap for $1\frac{1}{2}$ " and 2" pipe.

Price each ----- 1.00

Oshkosh Patent Adjustable Pipe Lifter and Holder

Both jaws work automatically by simply pressing downward with the foot on the jaw with lever shown in cut. No bolts or screws to turn. Will handle any size pipe from one inch to two inch—the jaws adjusting themselves to the different sizes. Base is made of malleable iron, thus reducing breakage to a minimum. To either lift or lower the pipe, work the handle of lifter the same as you would work a pump handle. An easy working, fast and reliable tool.



Oshkosh Pump Flange



SIDE VIEW

This flange is so constructed that it will fit any size pump base, no matter what make of pump is used. Made for 3, 4, 4½, 5 and 6 inch pipe.



Pipe Lifting Clevis

A very useful addition to any Well Driller's Outfit

Extensively used, needs no further description

No. 1 Pump Jack

The accompanying cut illustrates our new pump jack for operating ordinary well pump standards by belt power. The power may be derived from any source, such as gasoline engine, wind mill, tread power or water wheel. They have three strokes—5, 7½ and 10 inch. They are furnished with tight and loose pulleys, 13 inches in diameter for 2 inch belt, which should not be driven over 200 turns per minute. As a rule we recommend 160 turns, which will cause the pump to make 39 strokes per minute. The minimum capacity of the jack for raising water with a 3 inch cylinder on the 5 inch stroke is 200 feet; on the 7½ inch stroke 150 feet, and on the 10 inch stroke 100 feet. It will be observed—

1st—On the up stroke the pitmans are vertical and put no side wear on the pump piston bar.

2d—The pump jack is extremely simple in design. It has only one gearing, which is covered with a shield to prevent anything getting into the gearing.

3d—The pump jack is fastened to the pump standard by means of a clamp and four bolts, making it convenient to fasten to all ordinary pump standards.

4th—There is a foot on the back part of the jack that rests on the platform and serves to help support the pump jack, and also to brace the pump.

5th—The crank shaft presses down and holds the pump down when the pitmans are pushing the piston bar up and lifting the water. When an engine operates the pump by means of a walking beam, it tends to lift the pump bodily.

6th—There is much less difficulty getting good foundation for an engine when it can be set a few feet away from the well than when it must be set partly over the well, as is necessary when the engine operates the pump by means of a walking beam.

7th—When the pump is set under a windmill, the pump may be operated by three different means—the windmill, the engine and by hand, and one can quickly change from one to the other by simply changing the pump pin.





No. 710



No. 711



No. 712



No. 713

Windmill Stuffing Box Heads

The above illustrations show the different styles we make of stuffing box heads for windmill use. Nos. 710, 711 and 712 are made of iron. No. 713 is all brass. The discharge for Nos. 712 and 713 is made by a Tee attached to the suction pipe below head.

No.	Fitted for Pipe	Stroke, Inches	Price
710	1, 1½, 1¾ or 2 inch	10	6.00
711	1, 1½, 1¾ or 2 inch	10	6.00
712	1, 1½, 1¾ or 2 inch	10	3.00
713	1, 1½, 1¾ or 2 inch	10	4.00

Plunger Leather
CrimpedLower Valve
Leather

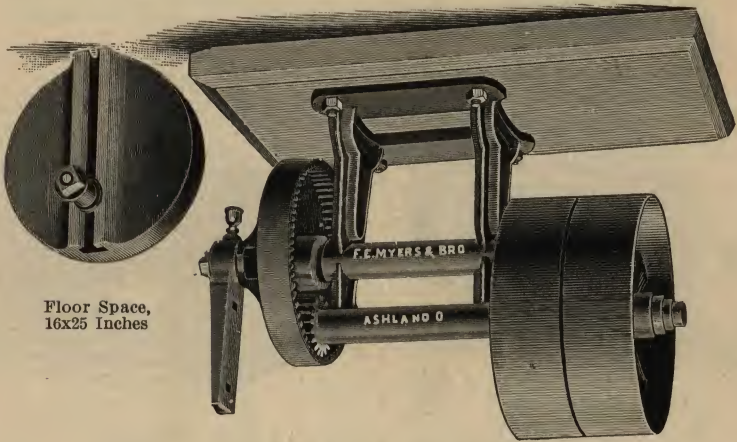
Crimped Plunger Leathers

Size	inches	1	1½	1¾	2	2½	2¾	3	3½	3¾		
Price	per gross	3.50	4.50	6.00	8.00	9.00	10.00	13.00	14.50	16.50	18.50	24.50
Size	inches	3¾	4	4½	4¾	5	5½	5¾	6	6½		
Price	per gross	29.00	31.50	37.50	40.00	43.00	49.00	50.00	57.50	65.00	72.00	

Lower Valve Leathers

Diameter	Cylinder	1½	1¾	2	2½	2¾	3	3½	3¾	4
Diameter	Leather	2	2½	2¾	3	3½	3¾	4	4½	5
Price	per gross	5.00	6.00	6.50	8.00	8.50	10.00	10.50	13.00	15.50
Diameter	Cylinder	4	4½	4¾	5	5½	6	6½	7	8
Diameter	Leather	4½	5	5½	5¾	6	6½	7	7½	8
Price	per gross	18.00	19.50	21.00	26.00	35.00	46.00	60.00	78.00	100.00

Give inside diameter of cylinder when ordering lower valve leathers.



Floor Space,
16x25 Inches

Direct or Back-Geared Countershaft

WITH TIGHT AND LOOSE PULLEYS. FOR OPERATING PUMPS AND OTHER PURPOSES

When back-geared, it takes $3\frac{1}{2}$ revolutions of drive wheel to make one stroke of pump. The stroke can be adjusted from 2" to 10" by sliding the wrist pin in the slot shown on crank wheel. Can be used in any position. Shafts are $1\frac{1}{2}$ " diameter; tight and loose pulleys 12" diameter, 3" face. Price ----- 15.00

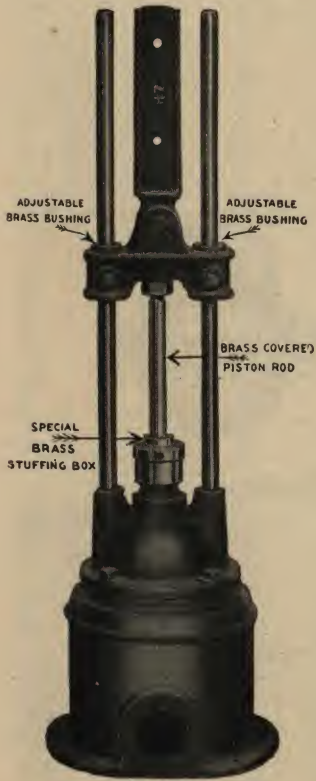


Fig. 304

Red Jacket Working Heads

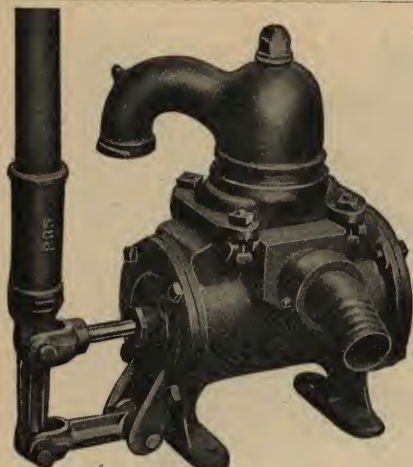
These heads are designed for deep well work for power use. They can be used on or below the platform of the well.

They are fitted with heavy brass covered piston rods, and is provided with adjustable brass bushings for taking up wear.

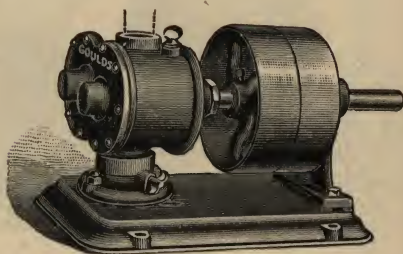
By removing four screws in cap, the working parts of cylinder can be drawn up for repairs at any time.

FIG. 304

Number	1	1½	2
Price, complete	14.00	16.00	25.00
Weight, pounds	54	56	77
Inlet tapped	4"	4"	6"
Outlet tapped	2½"	2½"	4"
Length of stroke	16"	20"	24"
Size piston rod	¾"	¾"	¾"



Turret Tank Pump



Rotary Force Pump

Turret Double Acting Tank Pump

This pump is fitted for 2" suction hose or pipe, 1" discharge hose and furnished complete with handle, wrench, strainer, hose band and hose connection.

Price..... 10.00

Power Rotary Force Pumps

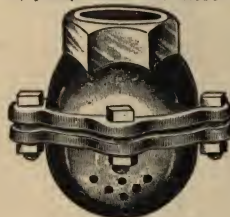
These pumps are largely used as circulating pumps between gasoline engines and cooling tanks, for pumping to elevated tanks, etc.

No.	Price	Capacity per Minute, 200 Rev. Gallons	Suction	Discharge	Tight and Loose Pulleys
1	27.00	20	1½"	1"	8x2½
2	32.00	25	1½"	1"	8x2½
3	38.00	28	1½"	1½"	8x2½
4	48.00	50	2"	1½"	12x3½
5	54.00	55	2"	2"	12x3½
6	80.00	65	2½"	2½"	24x4

Total lift and force from supply to point of delivery is 60 feet, pump to be not more than 20 feet above water.



Strainer



Foot Valve

Malleable Suction Pipe Strainers

Size Pipe	Plain	Galvanized	Galvanized with Brass Wire Gauze
1-inch.....each	.18	.22	.28
1½-inch.....each	.20	.24	.32
1½-inch.....each	.24	.26	.36
2-inch.....each	.36	.40	.50

Iron Foot Valve and Strainer

Size pipe	¾	1	1½	1½	2	2½	3	3½
Painted.....	.42	.44	.52	.65	.90	1.30	1.85	2.60
Galvanized.....	.60	.70	.75	1.00	1.45	2.00	2.70	3.90
Size pipe	4	4½	5	6	7	8	10	12
Painted.....	2.80	4.00	4.25	7.00	16.00	20.00	29.00	58.00
Galvanized.....	4.25	5.25	6.50	10.00	30.00	50.00	70.00	90.00



Brass Jacket Drive Well Points

MADE OF GALVANIZED WROUGHT IRON PIPE

Trade No.	Inside Diam. Inches	Length of Point. Inches	Length of Jacket. Inches	Aggregate Number of Square Inches Openings	Number of Gauge 60. Price per Dozen	Number of Gauge 70. Price per Dozen	Number of Gauge 80. Price per Dozen	Number of Gauge 90. Price per Dozen	Number of Gauge 100. Price per Dozen	Number of Gauge 120. Price per Dozen
74	1	24	18	15	33.00	40.00	46.00	52.00	62.00	74.00
76	1	30	24	20	42.00	49.00	56.00	64.00	78.00	94.00
78	1	36	30	25	51.00	59.00	66.00	76.00	94.00	114.00
80	1	42	36	30	60.00	68.00	76.00	88.00	120.00	134.00
82	1	48	42	35	69.00	78.00	86.00	100.00	136.00	154.00
84	1	54	48	40	78.00	87.00	96.00	112.00	152.00	174.00
84½	1	60	54	45	87.00	96.00	106.00	124.00	168.00	194.00
85	1	66	60	50	96.00	105.00	116.00	136.00	184.00	214.00
85½	1	72	66	55	105.00	114.00	126.00	148.00	200.00	234.00
86	1½	20	14	15	30.00	36.00	42.00	50.00	64.00	80.00
90	1½	24	18	20	36.00	44.00	52.00	60.00	80.00	105.00
94	1½	30	24	20½	46.00	55.00	64.00	75.00	100.00	130.00
98	1½	36	30	33	56.00	66.00	76.00	90.00	120.00	155.00
100	1½	42	36	39½	66.00	77.00	88.00	105.00	140.00	180.00
102	1½	48	42	45½	76.00	88.00	100.00	120.00	160.00	205.00
106	1½	54	48	52	86.00	99.00	112.00	135.00	180.00	230.00
110	1½	60	54	58½	96.00	110.00	124.00	150.00	200.00	255.00
112	1½	66	60	65	106.00	121.00	136.00	165.00	220.00	280.00
114	1½	72	66	71½	116.00	132.00	148.00	180.00	240.00	305.00
114½	1½	78	72	78	126.00	143.00	160.00	195.00	260.00	330.00
136	1½	24	18	22½	48.00	57.00	65.00	78.00	94.00	112.00
140	1½	30	24	30	60.00	70.00	80.00	96.00	118.00	139.00
144	1½	36	30	37½	72.00	84.00	95.00	114.00	142.00	166.00
146	1½	42	36	45	84.00	97.00	110.00	132.00	166.00	193.00
148	1½	48	42	52½	96.00	111.00	125.00	150.00	188.00	220.00
150	1½	54	48	60	108.00	124.00	140.00	168.00	204.00	247.00
152	1½	60	54	67½	120.00	138.00	155.00	186.00	228.00	274.00
154	1½	66	60	75	132.00	151.00	170.00	204.00	252.00	301.00
156	1½	72	66	82½	144.00	165.00	185.00	222.00	276.00	328.00
160	2	24	18	26	75.00	85.00	94.00	110.00	130.00	150.00
164	2	30	24	35	90.00	101.00	112.00	132.00	160.00	185.00
168	2	36	30	43½	105.00	118.00	130.00	154.00	190.00	220.00
170	2	42	36	52½	120.00	134.00	148.00	176.00	220.00	255.00
172	2	48	42	62	135.00	151.00	166.00	198.00	250.00	290.00
174	2	54	48	70	150.00	167.00	184.00	220.00	280.00	325.00
176	2	60	54	78½	165.00	184.00	202.00	242.00	310.00	360.00
178	2	66	60	87½	180.00	200.00	220.00	264.00	340.00	395.00
180	2	72	66	96	195.00	217.00	238.00	286.00	370.00	430.00
180½	2	78	72	105	210.00	234.00	256.00	308.00	400.00	465.00
182	2	84	78	113	225.00	251.00	274.00	330.00	430.00	500.00
182½	2	90	84	122½	240.00	268.00	292.00	352.00	460.00	535.00
183½	2	96	90	132	255.00	285.00	310.00	374.00	490.00	570.00
183	2½	30	24	40	155.00	175.00	195.00	220.00	250.00	290.00
184	2½	36	30	50	180.00	205.00	230.00	260.00	300.00	350.00
188	2½	48	42	70	220.00	265.00	300.00	340.00	400.00	470.00
192	2½	60	54	90	280.00	325.00	370.00	420.00	500.00	590.00
196	2½	72	66	110	320.00	385.00	440.00	500.00	600.00	710.00
197	2½	84	78	130	380.00	445.00	510.00	580.00	700.00	830.00
199	2½	96	90	150	430.00	505.00	580.00	660.00	800.00	950.00
200	3	36	30	67½	240.00	275.00	310.00	340.00	410.00	490.00
204	3	48	42	94½	300.00	345.00	390.00	430.00	520.00	630.00
208	3	60	54	111½	360.00	415.00	470.00	520.00	630.00	770.00
212	3	72	66	138½	420.00	485.00	550.00	610.00	740.00	910.00
214	3	84	78	165½	480.00	555.00	630.00	700.00	850.00	1,050.00
215	3	96	90	192½	540.00	625.00	710.00	790.00	960.00	1,190.00
202	3½	36	30	70	300.00	345.00	390.00	430.00	520.00	610.00
206	3½	48	42	98	360.00	415.00	470.00	520.00	630.00	750.00
210	3½	60	54	126	420.00	485.00	550.00	610.00	740.00	890.00
213	3½	72	60	140	480.00	555.00	630.00	700.00	850.00	1,080.00
218	3½	84	72	168	555.00	640.00	725.00	805.00	960.00	1,170.00
219	3½	96	84	196	630.00	735.00	820.00	900.00	1,070.00	1,310.00
216	4	48	36	90	480.00	520.00	560.00	600.00	700.00	810.00
220	4	72	60	150	630.00	695.00	760.00	840.00	1,000.00	1,270.00
224	4	96	84	210	780.00	870.00	960.00	1,080.00	1,300.00	1,610.00
228	4	120	108	270	980.00	1,045.00	1,160.00	1,320.00	1,600.00	2,010.00

Please order by trade number.



Fig. 46

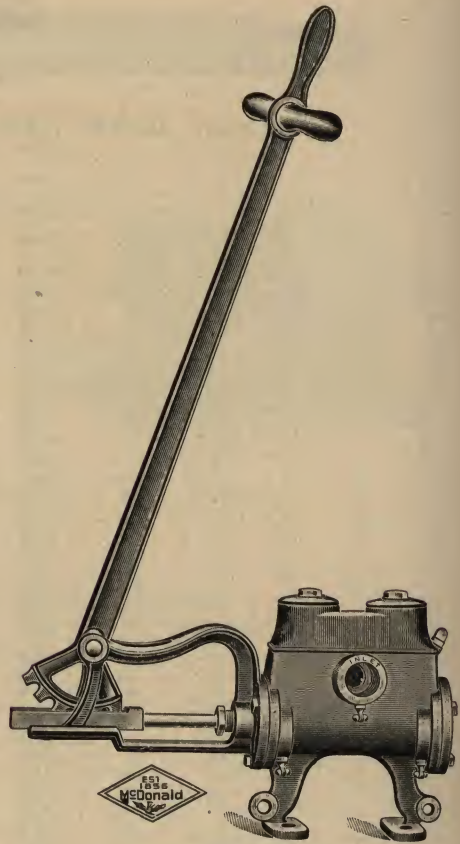


Fig. 346

Horizontal Double Acting Force Pumps

These pumps are designed and particularly adapted for pneumatic tank pressure work.

Valves and Valve Seats are Cast Brass.

Solid cast brass stuffing box nut.

The valves are readily accessible by simply unscrewing the valve caps on top of the pump.

Equipped with $\frac{5}{8}$ -inch brass covered piston rod.

Fitted with brass thumb screw drainage and priming plugs at all necessary points.

All water-ways are ample size.

Handle can be changed to opposite end by interchanging cylinder heads, without disturbing body of pump or connections.

The drainage plug under the inlet is tapped for $\frac{1}{4}$ inch pipe and when the pump is used for pneumatic tank pressure work, we recommend placing an intake air valve at this point to keep the tank supplied with air.

We recommend the Intake Air Valve as the best and surest method for supplying air to Pneumatic Pressure Tanks.

No.	Size Cylinder	Suction	Discharge	Figure 346		Figure 46	
				Iron	Brass Lined	Iron	Brass Lined
2	2 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	1"	17.50	20.00	16.00	18.50
4	3"	1 $\frac{1}{2}$ "	1"	19.50	22.50	18.00	21.00
6	3 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	21.50	25.00	20.00	23.50



Pneumatic Water Supply Systems with Hand Force Pump, Horizontal or Vertical Tanks

A Pneumatic Water Supply System is one of the advantages that is now enjoyed by residents of towns, villages or farms and localities where there is no regular pressure system similar to a city water works. The installation of a Pneumatic System gives you your own water works at a pressure sufficient to reach and adequately supply plumbing fixtures in all parts of the house and is just as satisfactory and reliable in all essential respects as a city water works, causing little or no trouble in maintaining the pressure, and the cost of upkeep is too trivial to dwell upon.

Supply and outlet of tank should always be at the bottom. Various branches may be taken from the discharge pipe and run to the different fixtures of the house to supply the kitchen, bathroom, etc., with running water.

The water is forced into the bottom of the tank, which is air tight, and compresses the air in the top of the tank and ordinarily a few hours' pumping will store sufficient water to supply the average residence for several weeks. A pressure of one pound will elevate water 27 inches, and as a pressure of 75 to 100 pounds is easily obtainable, no difficulty is experienced in reaching any part of the house or adjacent buildings.

Pneumatic Pressure Tanks Only—No Fittings Included

Diam. inches	Length feet	Thickness, Inches		Weight pounds	Cpcty. gallons	Price each	Diam. inches	Length feet	Thickness, Inches		Weight pounds	Cpcty. gallons	Price each
		Shell	Head						Shell	Head			
24	5	$\frac{1}{8}$	$\frac{1}{8}$	425	120	55.00	36	10	$\frac{1}{8}$	$\frac{1}{8}$	1050	525	131.00
24	6	$\frac{1}{8}$	$\frac{1}{8}$	445	145	58.00	36	12	$\frac{1}{8}$	$\frac{1}{8}$	1200	630	141.00
24	7	$\frac{1}{8}$	$\frac{1}{8}$	510	170	63.00	36	14	$\frac{1}{8}$	$\frac{1}{8}$	1400	735	148.00
24	8	$\frac{1}{8}$	$\frac{1}{8}$	560	195	68.00	42	8	$\frac{1}{8}$	$\frac{1}{8}$	1450	575	135.00
24	10	$\frac{1}{8}$	$\frac{1}{8}$	675	245	74.00	42	10	$\frac{1}{8}$	$\frac{1}{8}$	1650	720	150.00
30	5	$\frac{1}{8}$	$\frac{1}{8}$	495	180	64.00	42	12	$\frac{1}{8}$	$\frac{1}{8}$	1900	865	196.00
30	6	$\frac{1}{8}$	$\frac{1}{8}$	560	220	70.00	42	14	$\frac{1}{8}$	$\frac{1}{8}$	2200	1000	219.00
30	7	$\frac{1}{8}$	$\frac{1}{8}$	625	255	75.00	42	16	$\frac{1}{8}$	$\frac{1}{8}$	2400	1150	236.00
30	8	$\frac{1}{8}$	$\frac{1}{8}$	700	295	88.00	48	12	$\frac{1}{8}$	$\frac{1}{8}$	2320	1130	250.00
30	10	$\frac{1}{8}$	$\frac{1}{8}$	870	365	102.00	48	14	$\frac{1}{8}$	$\frac{1}{8}$	2610	1300	274.00
30	12	$\frac{1}{8}$	$\frac{1}{8}$	900	440	115.00	48	16	$\frac{1}{8}$	$\frac{1}{8}$	2900	1500	304.00
36	5	$\frac{1}{8}$	$\frac{1}{8}$	675	265	85.00	48	18	$\frac{1}{8}$	$\frac{1}{8}$	3600	1700	351.00
36	6	$\frac{1}{8}$	$\frac{1}{8}$	750	315	92.00	48	20	$\frac{1}{8}$	$\frac{1}{8}$	3950	1880	393.00
36	7	$\frac{1}{8}$	$\frac{1}{8}$	825	365	102.00	48	24	$\frac{1}{8}$	$\frac{1}{8}$	4650	2260	437.00
36	8	$\frac{1}{8}$	$\frac{1}{8}$	900	420	112.00							

Manheads, net extra, each-----10.00

Iron Tank Stands

Diameter of Tank	Inches	24	30	36	42	48
Price	per pair	5.25	5.25	7.00	14.00	19.00

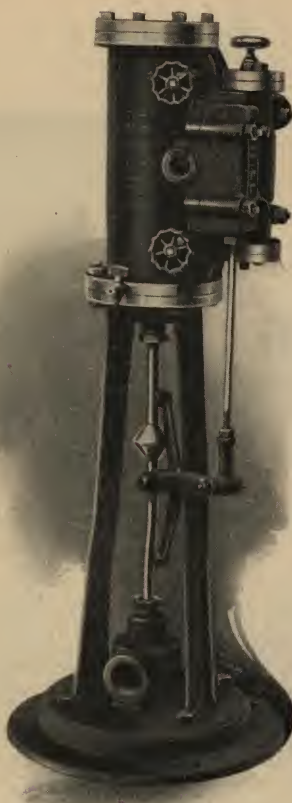
All Tanks tested to 125 pounds air pressure and guaranteed.

All 5-foot Tanks are furnished to stand upright (vertical); 6-foot Tanks are tapped both for vertical and horizontal. Other sizes horizontal unless otherwise ordered.

In ordering state whether Vertical or Horizontal Tanks are wanted, and give the size and location of openings if special tappings are desired.



Regular



Handy

Hill Artesian and Deep Well Pumping Engines

No.	Diameter Steam Cylinder	Length of Stroke in Inches	Size of Base in Inches	Height	Maximum Size Well Pipe	Size of Steam Pipe	Size of Exhaust Pipe	Shipping Weight, in Lbs.	Price Engine Only
4½	4½	16	16	4' 2"	4½"	¾"	1	325	140.00
5	5	20	21x21	5' 3"	5"	1	1	500	175.00
6	6	24	24x24	6' 3"	6"	1	1½	800	225.00
7	6	36	24x24	8' 2"	6"	1	1½	975	260.00
8	8	24	26x26	6' 4"	8"	1½	1½	1000	300.00
9	8	36	26x26	8' 3"	8"	1½	1½	1300	325.00
10	10	30	29x35	7' 6"	10"	1½	2	1800	375.00
11	10	36	29x35	8' 8"	10"	1½	2	2100	400.00
12	12	36	32x38	8' 10"	12"	2	2½	2500	500.00
14	14	36	32x38	9'	12"	2	2½	3000	640.00

Sight Feed Lubricators are furnished with all the above sizes.

When ordering engines only, state size of drop pipe and sucker rod to be used.

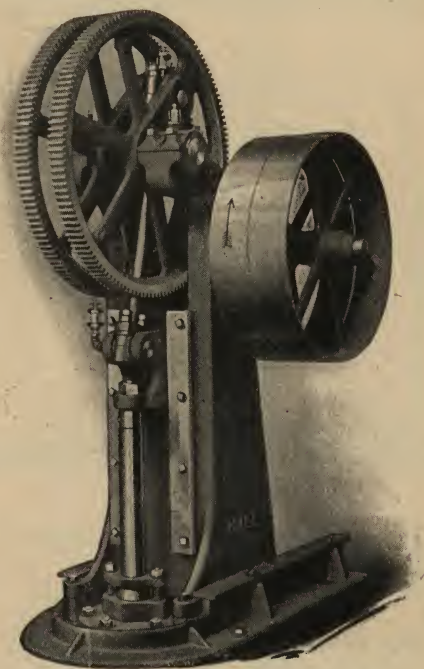
For Brass Covered Plunger, add 5 per cent.

Hill Handy Deep Well Pumping Engine

Diameter Steam Cylinder	Stroke	Base	Height	Steam Pipe	Exhaust Pipe	Weight, Lbs.	Price Engine Only	Extra for Hand and Wind Mill Attachment
4"	8"	13"	36"	½"	¾"	125	70.00	12.00

Base Flange made to fit any size drop pipe up to 4 inches. State size wanted.

For Brass Piston Rod, add 2.00.



The Hill Power Deep Well Pumping Head

For pumping all kinds of deep wells by power by means of belt or direct connection to shafting, gas or gasoline engines, electric motors, etc., making a very economical, serviceable and efficient pump.

These pumping heads are strictly Self-Contained, and with this driving mechanism we are geared to both sides of wrist and connecting rod and not from one side as in most cases with other makes; thus the strain is equalized and divided as it should be.

Each head is provided with a displacement plunger that discharges part of the water on the down stroke, thus equalizing the load and making the flow continuous. The plunger is readily uncoupled without turning the rods in the well.

No.	Stroke	Maximum Well Cylinder	Maximum Elevation	Gear Ratio	Size Pulleys	Size Base	Height to Center Pulley Shaft	Shipping Weight, Pounds	Speed of Pulley Shaft	Price
8	8"	4"	150'	6 to 1	15x3	14"x18"	21 1/2"	400	240	108.00
12	12"	5"	150'	6.8 to 1	18x4	21"x38"	31 1/2"	800	240	200.00
16	16"	6"	150'	7 to 1	24x4	23"x42"	38 1/2"	1000	210	250.00
24	24"	8"	150'	8 to 1	30x6	30"x56"	60"	2700	200	525.00

Extras that help to steady the load and lessen the power required.

	8 inch	12 inch	16 inch	24 inch
For Counter Weights on Main Gears, add.....	4.00	6.00	8.00	12.00 Net
For Fly Wheel on Pulley Shaft, add.....	6.00	7.00	12.00	15.00 Net

Size of pulleys can be changed when necessary.

The 12, 16 and 24 inch stroke heads have sliding bases, allowing head to be slid back out of the way whenever it is necessary to open up the well.

Brass Lined Working Barrels

FITTED WITH FOUR LEATHER PLUNGER AND BRONZE BALL VALVES

Cylinders will be furnished for well casing at below price list for corresponding sizes. Intermediate sizes will take list of next larger size.



Size of Well Inches	Inside Diameter of Cylinder Inches	Length Stroke Inches	Length Barrel Inches	Price of Cylinder Complete
2	1 1/8	10	23	11.50
2	1 1/8	14	27	12.00
2	1 1/8	24	37	13.50
2	1 1/8	36	49	15.50
2 1/2	2 1/8	10	24	15.50
2 1/2	2 1/8	14	28	16.50
2 1/2	2 1/8	24	38	18.00
2 1/2	2 1/8	36	50	19.50
3	2 3/8	10	26	21.50
3	2 3/8	14	30	22.50
3	2 3/8	24	40	24.50
3	2 3/8	36	52	27.00
3 1/2	3 1/8	10	28	31.50
3 1/2	3 1/8	14	32	32.50
3 1/2	3 1/8	24	42	35.00
3 1/2	3 1/8	36	54	38.00
4	3 3/8	10	28	44.50
4	3 3/8	14	32	46.00
4	3 3/8	24	42	49.00
4	3 3/8	36	54	52.50
4 1/2	4 1/8	10	34	54.50
4 1/2	4 1/8	14	38	56.00
4 1/2	4 1/8	24	48	61.50
4 1/2	4 1/8	36	60	65.50
5	4 3/8	24	48	78.00
5	4 3/8	36	60	86.00
6	5 1/8	24	52	112.00
6	5 1/8	36	64	124.00
7	6 1/8	24	56	152.00
7	6 1/8	36	68	166.00
8	7 1/8	24	58	236.00
8	7 1/8	36	70	250.00
9	8 1/8	24	60	285.00
9	8 1/8	36	72	325.00
10	9 1/8	24	68	460.00
10	9 1/8	36	76	490.00

Irrigating Brass Lined Cylinders

Cylinders will be furnished for well casing at list price below for corresponding sizes. Intermediate sizes will take list of next larger size.

Size of Well, Inches	Inside Diameter of Cylinder, Inches	Length Stroke, Inches	Length Barrel, Inches	Size of Pin in Plunger, Inches	Price of Cylinder Complete
2	1 1/4	10	21	5/8	7.00
2	1 1/4	14	26	5/8	8.00
2	1 1/4	24	42	5/8	10.50
2	1 1/4	36	54	5/8	12.00
2 1/2	2 1/4	10	21	5/8	11.00
2 1/2	2 1/4	14	26	5/8	12.00
2 1/2	2 1/4	24	42	5/8	14.50
2 1/2	2 1/4	36	54	5/8	16.00
3	2 3/4	10	21	5/8	16.00
3	2 3/4	14	26	5/8	17.50
3	2 3/4	24	42	5/8	21.00
3	2 3/4	36	54	5/8	23.50
3 1/2	3 1/4	10	21	5/8	19.50
3 1/2	3 1/4	14	26	5/8	21.00
3 1/2	3 1/4	24	42	5/8	25.00
3 1/2	3 1/4	36	54	5/8	28.00
4	3 3/4	10	21	5/8	24.00
4	3 3/4	14	28	5/8	26.00
4	3 3/4	24	42	5/8	31.50
4	3 3/4	36	54	5/8	34.50
4 1/2	4 1/4	14	30	1 1/8	32.00
4 1/2	4 1/4	24	42	1 1/8	38.50
4 1/2	4 1/4	36	54	1 1/8	42.50
5	4 3/4	14	32	1 1/8	40.00
5	4 3/4	24	42	1 1/8	45.00
5	4 3/4	36	54	1 1/8	50.50
6	5 3/4	24	42	1 1/8	65.00
6	5 3/4	36	54	1 1/8	74.00
7	6 3/4	24	42	1 1/8	90.00
7	6 3/4	36	54	1 1/8	102.00
8	7 3/4	24	48	1 1/8	120.00
8	7 3/4	36	60	1 1/8	135.00
10	9 3/4	24	50	1 1/2	350.00
10	9 3/4	36	62	1 1/2	380.00





Wrought Forged Sucker Rod Couplings

These Couplings are forged, have straight box and pin same size as oil well couplings, and are interchangeable with them.

Trade No.	Size of Box and Pin, Inches	Size of Wood Rod, Inches	Adapted for Working Barrels. Diameter in Inches	Price, per Set	Price, per Set, Galvanized
408	$\frac{5}{8}$	$1\frac{1}{8}$	$1\frac{1}{8}$ to $2\frac{1}{8}$	.60	.85
409	$\frac{7}{8}$	$1\frac{1}{2}$	$2\frac{1}{8}$ to $2\frac{3}{8}$	.75	1.15
410	1	$1\frac{3}{4}$	$2\frac{3}{8}$ to $3\frac{1}{8}$	1.30	1.75
411	$1\frac{1}{8}$	$2\frac{1}{4}$	$3\frac{1}{8}$ to $5\frac{1}{8}$	2.00	2.60
412	$1\frac{3}{8}$	$3\frac{1}{8}$	$5\frac{1}{8}$ to $9\frac{1}{8}$	5.00	6.00



Octagon Wood Pump Rods

Our Wooden Pump Rods are made of the best quality selected ash, and are furnished, unless otherwise specified, in random lengths of about 20 feet.

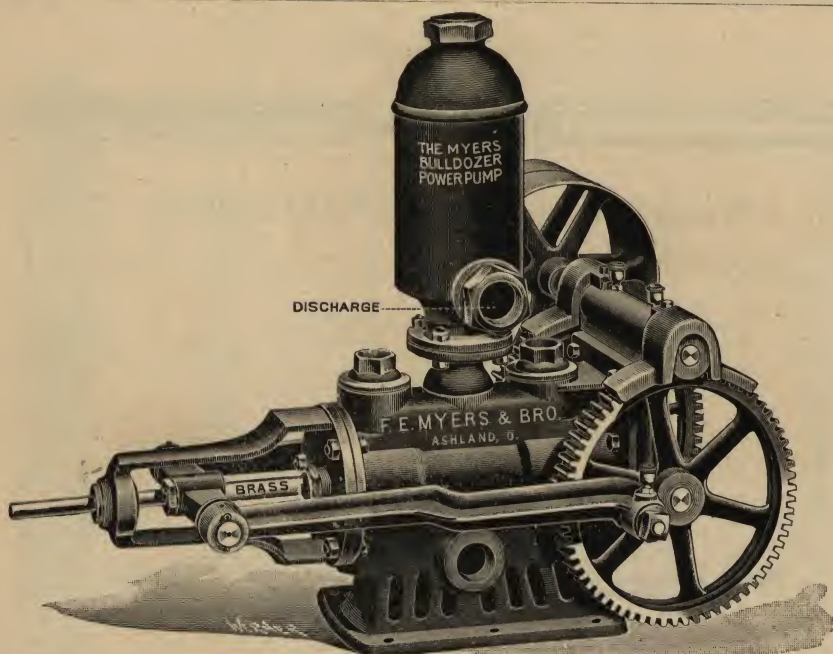
Size of Rod, Inches	Adapted for Working Barrels. Diameter in Inches	Price, per Foot, Blank	Price, per Foot, Fitted with Forged Sucker Rod Couplings	Price, per foot, Galvanized Forged Sucker Rod Couplings, and Copper Rivets
$1\frac{1}{8}$	$1\frac{1}{8}$ to $2\frac{1}{8}$	.04	.08	.15
$1\frac{1}{2}$	$2\frac{1}{8}$ to $2\frac{3}{8}$	.05	.11	.20
$1\frac{3}{4}$	$2\frac{3}{8}$ to $3\frac{1}{8}$	.09	.18	.30
$2\frac{1}{4}$	$3\frac{1}{8}$ to $5\frac{1}{8}$	.14	.25	.40
$3\frac{1}{8}$	$5\frac{1}{8}$ to $9\frac{1}{8}$	.30	.65	1.10



Iron Pipe Suction Strainers

The cut represents a suction strainer made of wrought iron pipe to be used in connection with well cylinders. These strainers have a pipe cap at lower end, and are threaded at the upper end to screw into the bottom attachment of the cylinder. Holes are drilled in central part of the strainer, allowing ample water-way.

Pipe Size	Total Length	Length of Perforated Space	Price	Weight, Pounds
2"	24"	12"	3.50	10
2 $\frac{1}{2}$ "	30"	18"	4.50	18
3"	30"	18"	6.00	24
3 $\frac{1}{2}$ "	36"	24"	7.50	30
4"	36"	24"	9.00	40
5"	40"	30"	11.50	60



No. 353

Myers Bulldozer Power Pumps WITH BRASS LINED CYLINDERS

No.	Price	Gallons per Hour	Suction and Discharge	Diameter of Cylinder	Stroke	Speed, Strokes per Min.	T. & L. Pulleys	Back Geared	Floor Space	Weight
362	80.00	1400	2"	3"	5", 7½", 10"	40	16x4	5 to 1	36"x 56"	397
353	80.00	2000	2"	5"	5"	35	16x4	5 to 1	36"x 42"	379
352	175.00	5800	3"	6"	10"	40	24x4	6 to 1	42"x 25"	760
363	250.00	7200	4"	6"	12", 16", 20"	25	30x6	8 to 1	47"x108"	1615

No. 362, 353 and 352 have machine cut gears. If No. 363 is wanted with machine cut gears add 25.00 to list price.

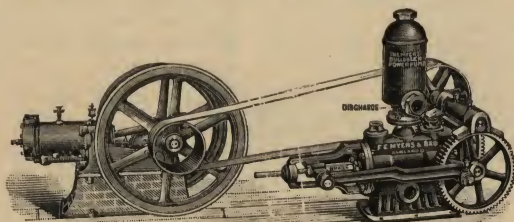
The Myers Bulldozer Power Pump is constructed with special reference to power, strength and capacity.

The entire pump is mounted on one base making it easy to set under all conditions. The special feature is the double gear which is practically two sets of gears transmitting power to the piston rod in two lines, one from each end of the main shaft, giving a decided advantage over all other constructions.

It is adapted to meet the requirements for a compact power pump to be operated with a gas or gasoline engine, electric motor or any belt power.

HORSE POWER REQUIRED FOR DIFFERENT ELEVATIONS

Elevation	25'	50'	75'	100'	150'	200'
No. 362	¾	¾	1	1½	1½	2
No. 353	¾	1	1½	1½	2	2½
No. 352	1½	2	3	4	5	
No. 363	4	5	6	7	9	





Horizontal

These pumps are especially adapted for contractor's use in draining sewers, excavations, etc.; for breweries, distilleries, oil mills, etc. Also used for irrigating.



Vertical

Centrifugal Pumps

No.	Suction	Dis-charge	Economical Capacity per Minute, Gals.	H. P. for each Foot Lift	Pulley		Horizontal		Vertical		Primer for Horizontal Pump
					Diam.	Face	Weight	Price	Weight	Price	
1	1½"	1"	25	.012	3½	2½	45	15.00	-----	18.75	-----
1½	2"	1½"	75	.033	4	4	125	22.50	125	28.00	-----
2	2½"	2"	125	.047	4	4	145	37.50	140	47.00	-----
2½	3"	2½"	185	.073	6	6	215	45.00	235	56.00	-----
3	4"	3"	265	.120	7	6	230	55.00	270	68.75	-----
3½	5"	3½"	370	.139	7	8	360	60.00	370	75.00	-----
4	6"	4"	480	.177	8	8	380	65.00	410	81.00	12.50
5	7"	5"	750	.258	9	10	680	82.50	500	103.00	15.00
6	8"	6"	1100	.39	10	10	725	100.00	630	125.00	20.00
7	9"	7"	1500	.54	12	12	950	130.00	1000	162.50	32.50
8	10"	8"	2200	.77	14	12	1280	155.00	1110	194.00	32.50
10	12"	10"	3300	1.14	16	16	2045	197.50	2100	247.00	-----
12	15"	12"	4500	1.54	20	16	2420	250.00	2510	312.50	-----
15	18"	15"	7300	2.43	24	16	3040	425.00	3000	530.00	-----
18	18"	18"	10500	3.46	20	20	5320	650.00	3520	675.00	-----
20	20"	20"	14000	4.5	24	20	7200	800.00	5530	825.00	-----
24	24"	24"	20000	6.3	30	24	11400	1075.00	9010	1100.00	-----

Nos. 1 and 1½ pumps have screwed connections. Nos. 2 to 15 inclusive are provided with companion flanges on both suction and discharge.

Sand Pumps

Special circular and prices sent on application.

Galvanized Steel Storage Tanks



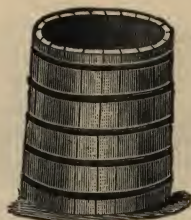
All galvanized steel tanks listed on this page are full 20 gauge. Storage tanks larger than 8x8 and large stock tanks should be made heavier than 20 gauge. For 18 gauge add 30 per cent; for 16 gauge add 60 per cent; for 14 gauge add 90 per cent.

All dimensions given are approximate.

Diam., Feet	Height, Feet	Capacity, Barrels	Weight, Pounds	Price	Diam., Feet	Height, Feet	Capacity, Barrels	Weight, Pounds	Price
4	4	11	115	16.50	6	7½	48	308	46.90
4	5	13¾	136	19.70	6	8	54	324	49.40
4	6	16½	157	22.90	6	10	67	387	59.60
4	8	22	200	29.30	6½	5	37½	258	38.40
4	10	27½	240	35.70	6½	6	45	294	43.80
4½	4	14	135	18.50	6½	8	63	368	54.60
4½	5	17½	159	22.10	6½	10	79	440	65.40
4½	6	21	183	25.70	7	5	43½	291	42.70
4½	8	28	233	33.90	7	6	52	330	48.50
4½	10	35	281	40.10	7	8	73	415	60.10
5	4	17½	156	21.00	7	10	91½	490	71.70
5	5	21¾	182	24.90	7½	5	52½	320	47.20
5	6	26	208	28.80	7½	6	63	360	53.40
5	8	34½	260	36.70	7½	8	84	445	65.80
5	10	43½	312	44.50	7½	10	105	530	78.20
5½	4	21½	178	24.00	8	5	59½	340	51.60
5½	5	26½	208	28.50	8	6	71½	396	58.20
5½	6	32	238	33.00	8	8	95½	485	71.40
5½	7½	40	283	39.80	8	10	119½	575	84.60
5½	8	42½	298	42.00	10	8	146	670	93.90
5½	10	53	358	51.00	10	10	184	775	110.00
6	4	25½	195	29.00	10	12	221	885	130.00
6	5	32	227	34.10	12	10	268	975	140.00
6	6	38	260	39.20	12	12	322	1100	165.00

Round Stock Tanks

Diam., Feet	Height, Feet	Capacity, Barrels	Weight, Pounds	Price	Diam., Feet	Height, Feet	Capacity, Barrels	Weight, Pounds	Price
3	2	3	52	8.20	6½	3	22½	167	24.60
3	2½	3¾	58	9.40	7	2	27½	155	21.50
3	3	4½	65	10.60	7	2½	11¾	173	24.20
3½	3	4¾	60	9.30	7	3	26	191	26.90
3½	2½	5¼	77	10.70	7½	2	20	173	24.70
3½	3	6¼	94	12.10	7½	2½	25	192	27.50
4	2	5½	75	10.50	7½	3	30	210	30.30
4	2½	7	85	12.00	8	2	23	188	28.00
4	3	8¼	95	13.60	8	2½	28½	210	31.00
4½	3	7	86	11.80	8	3	34½	230	34.00
4½	2½	8¾	99	13.50	9	2	29½	250	33.50
4½	3	10½	111	15.20	9	2½	36½	275	36.50
5	2	8¾	98	13.30	9	3	43½	295	39.50
5	2½	11	108	15.30	10	2	36	292	39.00
5	3	13	120	17.40	10	2½	45	317	43.00
5½	3	10¾	115	15.00	10	3	54	342	47.00
5½	2½	13¾	130	17.50	11	2	43¾	335	46.00
5½	3	16	145	20.00	11	2½	53¾	365	50.50
6	2	12¾	123	17.00	11	3	65½	395	55.00
6	2½	16	138	19.60	12	2	52½	380	53.50
6	3	19	153	22.20	12	2½	65½	410	58.50
6½	3	15	135	19.20	12	3	78½	440	63.50
6½	2½	18¾	151	21.90	13	2	61½	430	62.00



Round Water Tanks

Length of Staves	Diam. of Bottom Outside	No. of of Hoops	Capacity in Barrels	1½" Cypress		Length of Staves	Diam. of Bottom Outside	No. of of Hoops	Capacity in Barrels	1½" Cypress	
				Weight	Price					Weight	Price
2	8	2	2½	100	7.00	7	6	5	40	750	39.30
2	4	2	5	160	9.00	7	7	5	54	900	46.60
2	5	2	7	200	12.00	7	8	5	73	1000	54.50
2	6	2	10	250	15.00	7	9	5	95	1200	62.80
2	7	2	14	350	18.80	7	10	6	120	1500	71.00
2	8	2	20	425	22.00	7	12	6	168	1800	90.20
2	9	2	25	500	26.20	7	14	6	250	2150	108.48
2	10	2	30	600	30.50	7	16	6	315	2500	128.04
2	12	2	42	800	40.00	8	4	6	23	500	29.00
2	14	2	58	1000	54.10	8	5	6	36	650	36.80
2	16	2	75	1200	66.90	8	6	6	46	850	44.20
2½	3	2	3	120	7.80	8	7	6	64	1000	52.80
2½	4	2	6	180	10.00	8	8	6	84	1160	61.40
2½	5	2	9	225	13.20	8	9	6	107	1350	71.00
2½	6	2	13	300	16.70	8	10	6	133	1500	81.90
2½	7	2	18	400	20.34	8	12	6	193	1900	99.74
2½	8	2	24	475	24.04	8	14	6	256	2600	119.60
2½	9	2	34	550	28.60	8	16	6	345	3250	142.50
2½	10	2	38	675	33.50	9	4	7	25	534	34.90
2½	12	2	55	900	43.40	9	5	7	39	679	41.50
2½	14	2	76	1075	58.30	9	6	7	56	725	51.50
2½	16	2	100	1300	71.70	9	7	7	76	860	59.30
3	3	3	4	175	10.40	9	8	7	100	1010	68.50
3	4	3	7	240	12.80	9	9	7	127	1160	77.80
3	5	3	11	300	17.50	9	10	7	156	1325	90.40
3	6	3	16	375	21.40	9	12	7	225	1700	110.00
3	7	3	22	440	25.90	9	14	7	307	2105	131.70
3	8	3	27	500	30.46	9	16	7	400	2500	156.00
3	9	3	32	625	38.50	10	4	8	28	600	31.30
3	10	3	48	775	41.76	10	5	8	41½	725	45.70
3	12	3	72	1025	53.60	10	6	8	58	900	54.00
4	4	4	9	275	16.90	10	7	8	82	1100	64.40
4	5	4	15	400	21.70	10	8	8	106	1300	75.20
4	6	4	22	500	26.50	10	9	8	140	1550	86.70
4	7	4	31	675	31.80	10	10	8	168	1700	99.10
4	8	4	40	750	37.30	10	12	8	245	2000	121.50
4	9	4	54	850	46.80	10	14	8	328	2250	151.90
4	10	4	65	950	50.80	10	16	8	410	2500	167.95
4	12	4	95	1250	64.40	12	5	9	56	900	53.60
4	14	4	133	1485	72.00	12	6	9	68	1000	64.90
4	16	4	173	1956	94.20	12	7	9	94	1100	76.00
5	4	4	12	350	19.40	12	8	9	126	1400	88.60
5	5	4	20	400	24.80	12	9	9	168	1625	100.75
5	6	4	30	500	30.20	12	10	9	203	1750	114.20
5	7	4	40	570	36.10	12	12	9	282	2000	139.40
5	8	4	52	800	42.60	12	14	10	388	2600	168.95
5	9	4	70	900	49.20	12	16	10	495	3400	200.40
5	10	4	84	1000	56.90	14	6	12	85	1375	74.80
5	12	4	122	1400	71.50	14	7	12	115	1540	88.80
5	14	4	179	1550	94.68	14	8	12	145	1825	106.00
5	16	4	225	1675	103.68	14	10	12	235	2350	134.60
6	4	4	14½	400	23.00	14	12	12	337	3000	163.40
6	5	4	25	550	29.50	14	14	12	455	3800	191.00
6	6	4	34½	650	35.70	14	16	12	600	5600	228.88
6	7	4	46	800	42.20	16	6	14	100	1785	90.20
6	8	4	62	950	49.70	16	7	14	136	2094	100.50
6	9	4	75	1100	56.10	16	8	14	178	2440	115.40
6	10	5	90	1250	65.50	16	9	14	225	2812	135.46
6	12	5	150	1500	82.60	16	10	14	278	3170	149.32
6	14	5	210	1800	100.40	16	12	14	400	3932	182.30
6	16	5	270	2000	118.38	16	14	14	517	4769	217.70
7	5	5	30	605	32.50	16	16	14	690	5900	244.48

For approximate weight of 2" cypress add 40 per cent.



Tupper Grate Bars

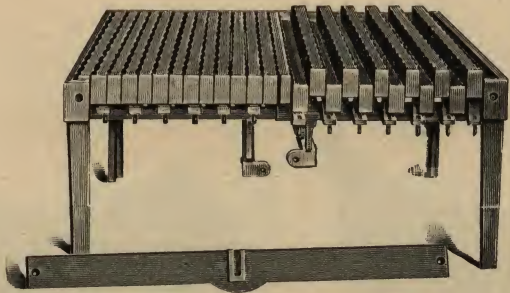
This popular grate is the best stationary bar on the market. It combines large air space with the smallest practical openings on the upper surface of the grate.
Standard sizes are 36", 42", 48", 54" and 60" long, and 6" wide.
State width and length of space to be filled.
Price, per square foot----- 2.00



Standard Grate Bars

Length of Bars	Width of Furnace	Price per Set		Width of Bar	
		3/8" Air Space	1/2" Air Space	3/8" Air Space	1/2" Air Space
30"	30"	10.00	11.60	3 1/8"	2 7/8"
36"	36"	12.00	14.00	3 1/8"	2 7/8"
42"	42"	18.50	20.90	3 1/8"	2 7/8"
48"	48"	27.00	31.30	3 1/8"	2 7/8"
54"	54"	37.40	43.30	3 1/8"	2 7/8"
60"	60"	50.70	56.30	3 1/8"	2 7/8"

In ordering give width and length of space to be filled, and state air space wanted.
Bars with 3/8 inch air space will be furnished unless otherwise ordered. If furnace is of other width than stated in table, price will be in proportion.
Special quotations made on irregular style and size grates.



Rose Patent Shaking Grates

This grate is one that will interest the steam user for its simple, heavy and substantial construction, its ease of operation, its efficiency and economy in the use of fuel and its great durability. In design and method of working it differs from any other shaking grate; its action being vertical, lifts and cleans the fire from the bottom; the frame being in sections, all the parts can be passed through the firing doors of the boiler and bolted in position in furnace without disturbing the brick work or setting in any way. The frames carry the grates in two or more sections, allowing the fireman to clean one section at a time without disturbing any other part. The grate when at rest presents an even and smooth top surface.

The vertical and shearing movement of the grates breaks and tears loose all clinkers, sifts out the ashes and allows the air to penetrate freely all parts of the fire.

The cut shows front end rail of frame removed giving an end and top view of grates; the section at left shows them as they appear when at rest and locked level, and at right as they appear when being operated or shaken. The grates are made in different openings or air space to suit different conditions and grades of fuel.

We have sold many sets of these grates, and have never had one returned. They are guaranteed to save money by reducing coal bills.

Price per square foot..... 5.00



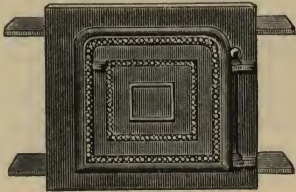
Atlas Grate Bars

Length	15"	17"	20"
Weight, each	4	5	6
Price, each .....	.19	.28	.35
.....pounds			
.....net			

The length of the above bars is measured from center of notch at one end to the extreme opposite end of bar.

Round Grates

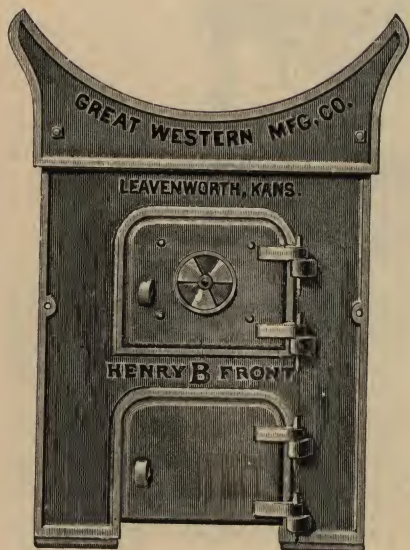
We have patterns for various sizes, and will quote prices on application.



Furnace Doors

We have a variety of patterns, and will quote prices upon application.

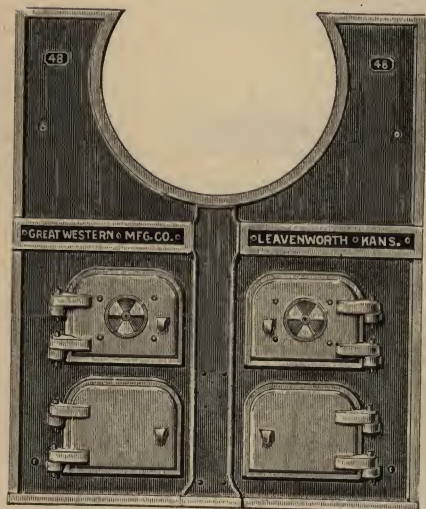
Fire Fronts



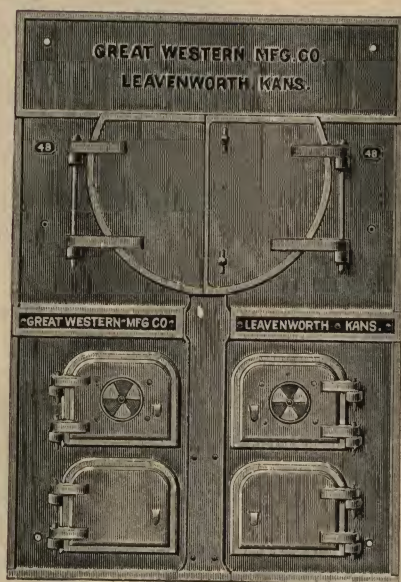
Class B, or "Quarter" Front.



Class C, or "Half" Front.



"Three-Quarter" Front.



"Full Square" Front.

Fire Fronts

Size of Boiler	Class "B."	Class "C."	Three-Quarter	Full Square
36 x 8	14.70	24.00	40.00	69.35
36 x 10	14.70	24.00	40.00	69.35
36 x 12	14.70	24.00	40.00	69.35
40 x 12	16.00	25.35	42.65	74.65
42 x 12	16.70	26.00	44.00	77.35
46 x 12	18.00	27.30	46.65	82.65
48 x 12	18.65	28.00	48.00	85.35
48 x 14	18.65	28.00	48.00	85.35
52 x 14	20.00	29.35	50.65	90.65
54 x 14	20.70	30.00	52.00	93.35
54 x 16	20.70	30.00	52.00	93.35
60 x 14	22.65	32.00	56.00	101.35
60 x 16	22.65	32.00	56.00	101.35
66 x 16	24.70	34.70	60.00	109.35
72 x 16	26.60	37.35	64.00	117.35



Wrought Iron Smoke Stacks

All sizes furnished promptly at the lowest current prices.

Wrought Iron Breechings

Prices upon application.

Wrought Iron Tanks

Prices upon application.

Fire Brick

At market prices.

Fire Clay

At market prices.



Roofing

We can furnish corrugated steel roofing and siding in sheets of various lengths, widths, and gauges. We are also prepared to furnish standing seam steel roofing, steel brick siding, and asbestos roofing. Prices upon application.



Proof Staff and Spirit Level

3½ Feet	4 Feet	4½ Feet
18.00	21.00	24.00

Cherry Red Staffs

BOXED

2½ Feet	3 Feet	3½ Feet	4 Feet
6.00	7.50	9.00	10.50

Hoisting Screws, Bales, and Pins

2½ Feet	3 Feet	3½ Feet	4 Feet	4½ Feet
18.00	20.00	22.50	27.00	30.00

Mill Curbs

STAVES AND BLACK WALNUT BANDS

2½ Feet	3 Feet	3½ Feet	4 Feet	4½ Feet
40.00	44.00	48.00	52.00	60.00

Millstone Irons

We are prepared to furnish all kinds of millstone irons and trimmings.

Spindles,	Lighter Bars	Drivers,	Regulating Screws,
Trampots,	Damsels,	Mill Bushes,	Leveling Screws.
Balance Rynes,	Silent Feeders,	Cone Bails,	

Prices and cuts of different styles furnished upon application.

Mill Picks

BEST ENGLISH CAST STEEL

Furrowing, with eye, weighing about 3 lbs. each.....	} 75 lbs. per lb.
Cracking, with eye, weighing about 2½ lbs. each.....	
Cracking, without eye, weighing about 2 lbs. each.....	

Pick Handles

Mortised and bolted head (hickory).....	each, 1.00
Patent head	each, 1.25

Face and Furrow Finishers

Corundum Polisher	3.50
Black Diamond hand tool.....	3.50



Great Western Plaster Mixer

SUITABLE FOR MIXING PATENT WALL PLASTER, PAINTS, KALSOMINE, FERTILIZER,
AND ANY HEAVY POWDERED OR GRANULAR MATERIAL

Among the many new improvements made in this Mixer are the large bearings, supported by heavy brackets or arms and held out four or five inches from where shaft passes through end of Mixer, thus effectually preventing sand or plaster from getting into the bearings. Stuffing boxes of the best design, such as used on engines, are used where shaft passes through end of tank. They are easy to reach and quickly packed, but even should these be neglected, and begin leaking, the sand would fall to the floor and not get into the bearings. The shaft of agitator is of great strength, and the paddles of such a peculiar shape, as to cause thorough mixing of the material from end to end of Mixer, at the same time mixing and beating the mass uniformly throughout the mixture. The body of Mixer and discharge valves are made of steel in order that they may stand the wear and strain of the heavy work required. The boxes are all babbitted with high speed babbitt metal, and the cast iron legs are made strong and durable.

There are two outlets or discharge valves, so constructed as to also form bag holders, and although one is usually all that is necessary, should occasion require, both can be used. The filling of the bags is under the control of the operator, and bags can be filled or partly so. In using the Mixer, a hopper holding the capacity of the Mixer, or more, is built on the floor above, connecting by means of a chute with the Mixer, and by this means a charge can be weighed out and placed in the hopper while another is being mixed, and capacity of Mixer greatly increased. We make a hopper, as described, of heavy galvanized iron, thoroughly braced with heavy strap iron, and connected with Mixer by a cut off, which works very easily.

Our standard machine has a capacity of 1500 to 2000 lbs. at each mixing. It is 6' high, occupies a floor space of 3' 4" x 12', has 20 x 8 pulleys, speed 340 revolutions, weighs 3300 lbs., and requires about 10 H. P. to operate under load.

Other sizes will be made to order.



Rock Crushers

Write for prices and full information regarding dimensions, weights, capacities, etc.

Pile Drivers

We are prepared to furnish Pile Drivers complete, or irons only, such as

Drop Hammers,	Adjustable Trips,
Dies or Pins,	Toggle Irons,
Nippers,	Sheaves, etc.

Prices on application.

Derricks

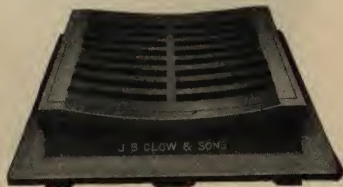
We quote, when requested, on derrick castings, rope, blocks, winches, etc., and furnish drawings showing how they may be put together.

Foundry Department

We show below only a few of our Foundry Specialties. We make all kinds of castings. Write us for an estimate when needing anything in this line.



Manhole Frame and Cover



Curb Drain

Manhole Frame and Cover

Can furnish with either closed or perforated cover.

Curb Drain

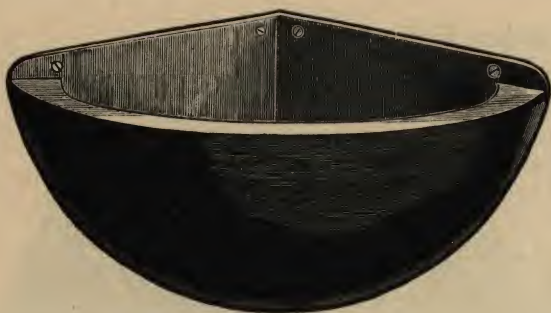
For use in gutters.



Corner Sewer Inlet

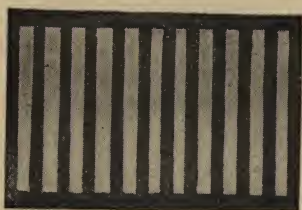


Coalhole Cover and Ring



Corner Feed Boxes

These boxes are provided with food guard which prevents waste.



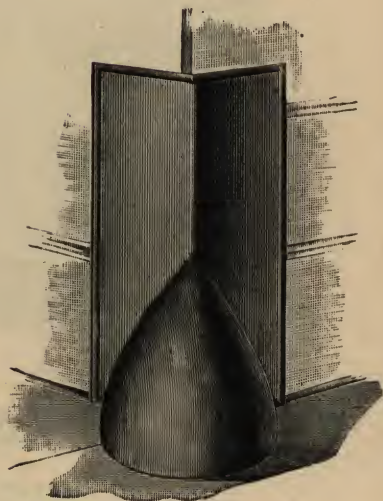
Area and Ventilating Grates

Can furnish almost any size.



Hitch Weights

These are standard pattern and weigh 25 lbs. each.



Wheel Guard

For protecting corners and entrances to buildings.

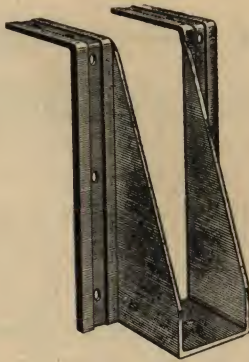


Corrugated Step Plates

We can furnish all lengths and widths.

Lawn Seat Castings

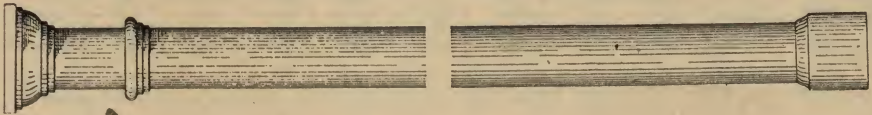
For Parks, Cemeteries, Etc.



Steel Joist Hangers

The cut shows a Joist Hanger for a wood header. We can also furnish them for brick walls, concrete blocks and steel I beams, either single or double.

We will be glad to send a special booklet fully describing these hangers, and quote prices.



Cast Iron Columns

We have a large variety of patterns.
Send plans for estimate.

Post Caps

Post Bases

These are of cast iron for use with wood posts.

Hitching Posts

We can furnish these in various designs.



Cast Iron Washers

We have many patterns for cast washers. When ordering, give diameter of bolt or rod and outside diameter of washer. Prices on application.

Horse Power of Shafting

For the transmission of power, authorities differ in their opinions about the proper size shafts to be used, and it is difficult to present rules which are universal in their application. In our experience, we have found the following tables safe to use in general practice.

Table No. 1—Figured from a well known formula:

$$H P = D^3 \times R \div 90.$$

H. P., horse power—D, diameter of shaft—R, revolutions per minute.

TABLE NO. 1

Diam. of Shaft	Number of Revolutions per Minute										
	100	125	150	175	200	225	250	275	300	325	350
1 1/4	6.	7.4	8.9	10.4	11.9	13.4	14.9	16.4	17.9	19.4	20.9
1 1/2	8.9	11.1	13.3	15.5	17.7	20.	22.2	24.4	26.6	28.8	31.
2 1/4	12.6	15.8	19.	22.	25.	28.	31.	35.	38.	41.	44.
2 1/2	17.	21.	26.	30.	34.	39.	43.	47.	52.	56.	60.
2 3/4	23.	29.	34.	40.	46.	52.	58.	64.	69.	75.	81.
3 1/4	30.	37.	45.	52.	60.	67.	75.	82.	90.	97.	105.
3 1/2	38.	47.	57.	66.	76.	85.	95.	104.	114.	123.	133.
3 3/4	47.	59.	71.	83.	95.	107.	119.	131.	143.	155.	167.
4 1/4	58.	73.	88.	102.	117.	132.	146.	162.	176.	190.	205.
4 1/2	71.	89.	107.	125.	142.	160.	178.	196.	213.	231.	249.
4 3/4	101.	126.	152.	177.	202.	227.	253.	278.	303.	328.	354.
5 1/4	139.	174.	209.	243.	278.	313.	348.	382.	417.	452.	487.
5 1/2	185.	231.	278.	324.	370.	416.	463.	509.	555.	601.	648.

This table we use for all ordinary line shafting well supported by bearings about 8-ft. centers.

TABLE NO. 2

$$H P = D^3 \times R \div 125.$$

Diam. of Shaft	Number of Revolutions per Minute										
	60	80	100	125	150	175	200	225	250	275	300
1 1/4	2.6	3.4	4.3	5.4	6.4	7.5	8.6	9.7	10.7	11.8	12.9
1 1/2	3.8	5.1	6.4	8.	9.6	11.2	12.8	14.4	16.	17.6	19.2
2 1/4	5.4	7.3	8.1	10.	12.	14.	16.	18.	20.	22.	24.
2 1/2	7.5	10.	12.5	15.	18.	22.	25.	28.	31.	34.	37.
2 3/4	10.	13.	16.	20.	24.	28.	32.	36.	40.	44.	48.
3 1/4	13.	17.	20.	25.	30.	35.	40.	45.	50.	55.	60.
3 1/2	16.	22.	27.	34.	40.	47.	54.	61.	67.	74.	81.
3 3/4	20.	27.	34.	42.	51.	59.	68.	76.	85.	93.	102.
4 1/4	30.	41.	51.	64.	76.	89.	102.	115.	127.	140.	153.
4 1/2	43.	58.	72.	90.	108.	126.	144.	162.	180.	198.	216.
4 3/4	60.	80.	100.	125.	150.	175.	200.	225.	250.	275.	300.
5 1/4	80.	106.	133.	166.	199.	233.	266.	299.	333.	366.	400.

We use this table for shafts subjected to heavy work where the transmission is concentrated, as with heavy pulleys, sheaves or gears, requiring the consideration of stiffness in addition to torsion. These tables call for heavier shafting for the same duty than is often figured by others, but the difference is only in the factor of safety used, the material under consideration being the same.

No matter what general rules are adopted, there are frequently special cases in which the engineer or designer must depart from his rules and use his judgment in determining both the size of the shaft and the number and location of bearings.

HORSE POWER

A horse power in machinery is estimated at 33,000 pounds raised one foot high in a minute.

Horse-Power of Belting

Horse-Power which may be transmitted by open single belts to pulleys running 100 revolutions per minute, the diameters of the driving and driven pulley being equal.

The horse-power of double belts is $\frac{1}{2}$ of that given in the table.

Diameter of Pulley in Inches	Width of Belt, in Inches												
	2 H.P.	3 H.P.	4 H.P.	5 H.P.	6 H.P.	8 H.P.	10 H.P.	12 H.P.	14 H.P.	16 H.P.	18 H.P.	20 H.P.	22 H.P.
6	.44	.65	.87	1.09	1.31								
7	.51	.76	1.01	1.27	1.53								
8	.58	.87	1.16	1.45	1.75								
9	.65	.98	1.31	1.64	1.97								
10	.73	1.09	1.45	1.81	2.18								
11	.8	1.2	1.6	2.	2.4								
12	.87	1.31	1.75	2.18	2.62								
13	.95	1.42	1.89	2.36	2.83								
14	1.02	1.52	2.02	2.53	3.05								
15	1.09	1.64	2.19	2.73	3.29								
16	1.16	1.74	2.32	2.91	3.48								
17	1.24	1.85	2.47	3.09	3.7								
18	1.31	1.96	2.62	3.27	3.92								
19	1.39	2.07	2.76	3.45	4.14								
20	1.45	2.18	2.91	3.64	4.36								
21	1.52	2.29	3.06	3.82	4.58								
22	1.6	2.4	3.2	4.	4.8								
23	1.67	2.51	3.35	4.18	5.02								
24			3.5	4.4	5.2	7.	8.7	10.5	12.2	14.	16.	17.	19.
25			3.6	4.5	5.5	7.3	9.1	10.9	12.7	14.5			
26			3.8	4.7	5.7	7.6	9.5	11.3	13.2	15.1			
27			3.9	4.9	5.9	7.8	9.8	11.8	13.7	15.6			
28			4.1	5.1	6.1	8.1	10.2	12.2	14.3	16.3			
29			4.2	5.3	6.3	8.4	10.5	12.6	14.8	16.9			
30			4.4	5.4	6.6	8.7	10.9	13.1	15.3	17.4	19.	22.	24.
31			4.5	5.6	6.8	9.	11.3	13.5	15.8	18.			
32			4.7	5.8	7.	9.3	11.6	14.	16.3	18.6			
33			4.8	6.	7.2	9.6	12.	14.4	16.8	19.2			
34			4.9	6.2	7.4	9.9	12.4	14.8	17.3	19.8			
35			5.1	6.4	7.6	10.2	12.7	15.3	17.9	20.4			
36			5.2	6.5	7.8	10.5	13.1	15.7	18.3	20.9	24.	26.	29.
37			5.4	6.7	8.1	10.8	13.5	16.2	18.9	21.5			
38			5.5	6.9	8.3	11.	13.8	16.6	19.3	22.1	25.	28.	30.
39			5.7	7.1	8.5	11.3	14.2	17.	19.9	22.7			
40			5.8	7.3	8.7	11.6	14.6	17.5	20.4	23.3	26.	29.	32.
42			6.1	7.6	9.2	12.2	15.3	18.2	21.4	24.3	28.	31.	34.
44			6.4	8.	9.6	12.8	16.	19.2	22.4	25.6	29.	32.	35.
46			6.7	8.4	10.	13.4	16.8	20.1	23.4	26.8			
48			7.	8.8	10.4	14.	17.4	21.	24.4	28.	31.	35.	38.
50			7.2	9.	10.9	14.6	18.2	21.8	25.4	29.	33.	36.	40.
54			7.8	9.8	11.8	15.6	19.6	23.6	26.4	31.2	35.	39.	43.
60			8.8	10.8	13.1	17.4	21.8	26.2	30.6	34.8	39.	44.	48.
66			9.6	12.	14.4	19.2	24.	28.8	33.6	38.4	43.	48.	53.
72			10.4	13.	15.6	21.	26.2	31.4	36.6	41.8	47.	52.	58.
78			11.4	14.2	17.	22.6	28.4	34.	39.8	45.4	51.	57.	62.
84			12.2	15.2	19.4	24.4	30.6	36.4	42.8	48.6	55.	61.	67.

EQUIVALENTS OF RUBBER AND LEATHER BELTING

In the following, Rubber Belting made from 32-ounce cotton duck has been taken as a basis of comparison.

- 2 Ply Rubber Belt=Light Single Leather Belt.
- 3 Ply Rubber Belt=Medium Single Leather Belt.
- 4 Ply Rubber Belt=Heavy Single Leather Belt.
- 5 Ply Rubber Belt=Light Double Leather Belt.
- 6 Ply Rubber Belt=Medium Double Leather Belt.
- 7 Ply Rubber Belt=Heavy Double Leather Belt.
- 8 Ply Rubber Belt=Triple Leather Belt.

Capacity of Elevators in Bushels of Grain Per Hour With Pulleys of Usual Size and Speed

ORDINARY BUCKETS

Size of Bucket, Inches	Cap. of Bucket in Cubic Inches	Distance Apart C.-C. in Inches	Diameter of Head Pulley	Speed of Head Shaft in R. P. M.	Speed of Belt, Feet per Minute	Capacity in Bushels per Hour
2 x 2	8	10	16	48	200	20
2½ x 2½	6	10	16	48	200	40
3 x 3	11	10	18	46	215	79
3½ x 3	13	10	18	46	215	93
4 x 3	15	10	20	42	220	110
4½ x 3½	20	12	20	42	220	122
5 x 3½	23	12	20	42	220	140
5½ x 4	39	12	20	42	220	238
6 x 4	42	12	24	40	250	290
7 x 4½	45	12	24	40	250	312
8 x 5	70	12	24	40	250	486
9 x 5	95	12	30	39	300	791
10 x 5½	110	12	30	39	300	916
11 x 6	160	16	36	36	340	1136
12 x 6	210	16	36	36	340	1490
14 x 6	240	16	36	36	340	1705
	275	16	36	36	340	1958

BUFFALO BUCKETS

Size of Bucket, Inches	Cap. of Bucket in Cubic Inches	Distance Apart C.-C. in Inches	Diameter of Head Pulley	Speed of Head Shaft in R. P. M.	Speed of Belt, Feet per Minute	Capacity in Bushels per Hour
12x7 x7	343	18	40	35	360	2295
12x7 x7½	375	18	40	35	360	2509
14x7 x7	400	18	40	35	360	2675
14x7 x7½	437	18	40	35	360	2924
14x7½ x7½	472	18	40	35	360	3158
14x7½ x8	490	18	40	35	360	3275
14x8 x8	542	18	40	35	360	3485
16x7 x7	456	18	40	35	360	3387
16x7 x7½	500	18	48	32	400	3717
16x7½ x7½	540	18	48	32	400	4015
16x7½ x8	560	18	48	32	400	4160
16x8 x8	620	18	48	32	400	4612
18x7 x7	513	18	48	32	400	4482
18x7 x7½	562	18	60	30	470	4909
18x7½ x7½	607	18	60	30	470	5302
18x7½ x8	630	18	60	30	470	5503
18x8 x8	697	18	60	30	470	6089
20x7 x7	570	18	72	28	527	5583
20x7 x7½	625	18	72	28	527	6122
20x7½ x7½	675	18	72	28	527	6612
20x7½ x8	700	18	72	28	527	6857
20x8 x8	775	18	72	28	527	7591

Formula For Horse-Power Required to Drive Grain Elevators

(Weight of material lifted in lbs. per minute ÷ length of bucket in inches × width of bucket in inches × 5) × height of elevator in feet × 1.03 ÷ 33000.

Speed of Elevator Belts

We give below about the correct speed Elevator Belts should run over a given size pulley in order to get a free and perfect discharge.

Speed of Belt—200 to 250 feet per minute over.....	24-inch pulley
Speed of Belt—300 to 350 feet per minute over.....	36-inch pulley
Speed of Belt—400 to 450 feet per minute over.....	48-inch pulley
Speed of Belt—500 to 550 feet per minute over.....	60-inch pulley
Speed of Belt—600 to 650 feet per minute over.....	72-inch pulley

Belt Conveyors

CAPACITIES OF TROUGHED BELT CONVEYORS IN TONS FOR MATERIAL WEIGHING
100 LBS. PER CUBIC FOOT

Width of Belt, Inches		12	14	16	18	20	22	24	26	28	30	32	34	36
Speed of belt 200 ft. per minute	Size in inches of pieces carried	2	2½	3	3½	4	4½	5	5½	6	6½	7	8	9
	Tons per hour	20	36	54	73	92	112	132	156	180	206	240	270	300
Speed of belt 400 ft. per minute	Size in inches of pieces carried	¾	1	1½	2	2½	3	3½	4	4½	5	5½	6	7
	Tons per hour	40	72	108	146	184	224	264	312	360	412	480	540	600

CAPACITIES OF TROUGHED BELT CONVEYORS IN CUBIC FEET AND BUSHELS—
SPEED 100 FEET PER MINUTE

Width of Belt, Inches	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
Cu. Ft. Per Hour	243	434	625	814	1007	1198	1369	1597	1823	2062	2320	2590	2878	3180	3500	3847	4232	4562	4944
Bushels Per Hour	195	348	500	700	806	964	1116	1282	1464	1576	1657	2080	2231	2554	2811	3090	3400	3664	3971

Capacity 50 per cent less for flat Belts.

Space carriers for grain conveying belts, five to six feet apart, making each alternate carrier a regular flat belt carrier. Space return rollers ten to twelve feet apart. For material weighing over 60 lbs. per cubic foot, space carriers four to five feet apart and return rollers 8 to 10 feet apart.

FORMULA FOR HORSE-POWER REQUIRED TO DRIVE BELT CONVEYORS

With 6 inch diameter carrying roller, well lubricated.

$$\frac{(\text{Weight of material carried in lbs. per min.} \times .2 + \text{Width of Belt}) \times \text{length of Conveyor.}}{33000}$$

FORMULA FOR LENGTH OF BELT CONVEYOR TAKE-UPS

$$\frac{\text{Length of Conveyor in feet} \div 100}{100} = \text{Length of Take-up in feet.}$$

Spiral Conveyor

FORMULA FOR HORSE-POWER REQUIRED TO DRIVE SPIRAL CONVEYOR

The weight of the material carried per minute in pounds \times length of the conveyor in feet $\times .6 \div 33000$.

Rules For Calculating The Speed of Gears or Pulleys

In calculating for gears, multiply or divide by the number of teeth as may be required. In calculating for pulleys, multiply or divide by their diameter in inches.

The driving wheel is called the Driver, and the driven wheel the Driven.

PROBLEM I.

The revolutions of driver and driven, and the diameter of driven being given, required the diameter of driver.

RULE—Multiply the diameter of driven by its number of revolutions, and divide by the number of revolutions of the driver.

PROBLEM II.

The diameter and revolutions of the driver being given, required the diameter of the driven to make a given number of revolutions in the same time.

RULE—Multiply the diameter of the driver by its number of revolutions, and divide the product by the required number of revolutions.

PROBLEM III.

The diameter or number of teeth, and number of revolutions of the driver, with the diameter or number of teeth of the driven being given, required the revolutions of the driven.

RULE—Multiply the diameter or number of teeth of the driver by its number of revolutions, and divide by the diameter or number of teeth of the driven.

PROBLEM IV.

The diameter of driver and driven, and the number of revolutions of driven being given, required the number of revolutions of driver.

RULE—Multiply the diameter of driven by its number of revolutions, and divide by the diameter of the driver.

FORMULA FOR HORSE-POWER OF CAST IRON PULLEYS

Let D = diameter of pulley in inches.

Let F = width of belt in inches.

Let R = revolutions per minute.

Let $H.P.$ = horse power.

$$\text{Then horse power} = \frac{D \times F \times R}{2860} \text{ for single belt.}$$

$$\text{Horse power} = \frac{D \times F \times R}{1720} \text{ for double belt.}$$

$$\text{In the same manner find diameter of pulley} = \frac{2860 \times H.P.}{R \times F}$$

$$\text{Or width of belt (single)} = \frac{2860 \times H.P.}{D \times R}$$

For double belt use 1720 in place of 2860.

TO FIND HORSE-POWER OF GEARS

Let D = diameter of spur gear, or average diameter of bevel, or mitre gear in inches.

Let P = pitch of teeth in inches.

Let F = width of teeth or face in inches.

Let R = revolution per minute.

$$\text{The horse power} = \frac{D \times P \times F \times R}{550}$$

Table Showing The Difference Between Gauges of Metal

No. of Gauge	U. S. Standard Gauge, Inches	Old English, Inches	Washburn & Moen, Inches	Birmingham or Stubs, Inches	American or Brown & Sharpe, Inches
7-0's	.5				
6-0's	.46875				
5-0's	.4375				
0000	.40625	.454	.393	.454	.460
000	.375	.425	.362	.425	.40964
00	.34375	.390	.331	.390	.36480
0	.3125	.340	.307	.340	.32495
1	.28125	.300	.283	.300	.28930
2	.25625	.284	.263	.284	.25763
3	.25	.259	.244	.259	.22942
4	.234375	.238	.225	.238	.20431
5	.21875	.220	.207	.220	.18194
6	.203125	.203	.192	.203	.16202
7	.1875	.180	.177	.180	.14428
8	.171875	.165	.162	.165	.12849
9	.15625	.148	.148	.148	.11443
10	.140625	.134	.135	.134	.10189
11	.125	.120	.120	.120	.09074
12	.109375	.109	.105	.109	.08081
13	.09375	.095	.092	.095	.07196
14	.078125	.083	.080	.083	.06408
15	.0703125	.072	.072	.072	.05707
16	.0625	.065	.063	.065	.05082
17	.05625	.058	.054	.058	.04525
18	.05	.049	.047	.049	.04030
19	.04375	.040	.041	.042	.03589
20	.0375	.035	.035	.035	.03196
21	.034375	.0315	.032	.032	.02846
22	.03125	.0295	.028	.028	.025347
23	.028125	.027	.025	.025	.022571
24	.025	.025	.023	.022	.0201
25	.021875	.023	.020	.020	.0179
26	.01875	.0205	.018	.018	.01594
27	.0171875	.01875	.017	.016	.014195
28	.015625	.0165	.016	.014	.012641
29	.0140625	.0155	.015	.013	.011257
30	.0125	.01375	.014	.012	.010025
31	.010985	.01225	.0135	.010	.008928
32	.01045625	.01125	.013	.009	.00795
33	.009375	.01025	.011	.008	.00708
34	.00859375	.0095	.010	.007	.0063
35	.0078125	.009	.0095	.005	.00561
36	.00703125	.0075	.009	.004	.005
37	.00664062	.0065	.0085		.00445
38	.00625	.00575	.008		.003965
39		.005	.0075		.003531
40		.0045	.007		.003144

Horse Power of Manila Transmission Rope at Various Speeds

Diameter of Rope	Speed of Rope in Feet per Minute											Smallest Diameter of Sheaves	
	1500	2000	2500	3000	3500	4000	4500	5000	6000	7000	8000		
1 1/2	1.45	1.9	2.3	2.7	3.0	3.2	3.4	3.4	3.1	2.2	0	20"	
	2.30	3.2	3.6	4.2	4.6	5.0	5.3	5.3	4.9	3.4	0	25"	
	3.30	4.3	5.2	5.8	6.7	7.2	7.7	7.7	7.1	4.9	0	30"	
	4.50	5.3	7.0	8.2	9.1	9.8	10.8	10.8	9.7	6.9	0	36"	
	5.80	7.7	9.2	10.7	11.9	12.8	13.6	13.6	12.5	8.8	0	42"	
	9.20	12.1	14.3	16.8	18.6	20.0	21.2	21.2	19.5	13.8	0	54"	
	13.10	17.4	20.7	23.1	26.8	28.8	30.6	30.6	28.2	19.8	0	60"	
	18.00	23.7	28.2	32.8	36.4	39.2	41.5	41.5	37.4	27.6	0	72"	
													72"
	23.10	30.8	36.8	42.8	47.6	51.2	54.4	54.4	50.0	35.2	0	84"	

Weight of Iron
ROUND IRON—ONE FOOT IN LENGTH

Diam.	Weight	Diam.	Weight	Diam.	Weight	Diam.	Weight	Diam.	Weight
$\frac{1}{16}$	.010	$1\frac{1}{2}$	3.360	$2\frac{1}{2}$	20.076	$4\frac{1}{2}$	59.900	$7\frac{1}{2}$	149.828
$\frac{1}{8}$	.041	$1\frac{3}{4}$	3.744	$2\frac{3}{4}$	21.944	$4\frac{3}{4}$	63.094	$7\frac{3}{4}$	159.456
$\frac{3}{16}$	.094	$1\frac{7}{8}$	4.172	3	23.888	5	66.752	8	169.856
$\frac{1}{4}$	.165	$1\frac{9}{8}$	4.573	$3\frac{1}{4}$	25.926	$5\frac{1}{4}$	69.751	$8\frac{1}{4}$	180.696
$\frac{5}{16}$	.261	1 $\frac{15}{8}$	5.019	$3\frac{3}{4}$	28.040	$5\frac{3}{4}$	73.172	$8\frac{3}{4}$	191.508
$\frac{3}{8}$	.373	$1\frac{7}{4}$	5.486	3 $\frac{7}{8}$	30.240	$5\frac{7}{8}$	76.700	$8\frac{7}{8}$	203.260
$\frac{7}{16}$	.508	1 $\frac{3}{2}$	5.972	3 $\frac{9}{8}$	32.512	$5\frac{9}{8}$	80.304	9	215.040
$\frac{1}{2}$	.663	1 $\frac{1}{2}$	7.010	3 $\frac{11}{8}$	34.896	$5\frac{11}{8}$	84.001	$9\frac{1}{2}$	227.152
$\frac{9}{16}$	.840	1 $\frac{1}{4}$	8.128	3 $\frac{13}{8}$	37.332	$5\frac{13}{8}$	87.776	$9\frac{3}{4}$	239.600
$\frac{5}{8}$	1.043	1 $\frac{3}{4}$	9.333	3 $\frac{15}{8}$	39.864	6	91.684	9 $\frac{1}{2}$	252.376
$\frac{11}{16}$	1.255	2	10.616	4	42.464	6 $\frac{1}{2}$	95.552	10	267.008
$\frac{3}{4}$	1.493	$2\frac{1}{4}$	11.988	$4\frac{1}{4}$	45.174	6 $\frac{1}{2}$	103.704	$10\frac{1}{2}$	278.924
$\frac{13}{16}$	1.752	$2\frac{1}{2}$	13.440	$4\frac{1}{2}$	47.952	6 $\frac{3}{4}$	112.160	10 $\frac{3}{4}$	292.688
$\frac{7}{8}$	2.032	$2\frac{3}{4}$	14.975	$4\frac{3}{4}$	50.815	6 $\frac{3}{4}$	120.960	11	321.216
1	2.333	$2\frac{7}{8}$	16.688	$4\frac{7}{8}$	53.760	7	130.048	$11\frac{1}{2}$	351.104
$1\frac{1}{16}$	2.654	3	18.293	$4\frac{9}{8}$	56.788	$7\frac{1}{2}$	139.544	12	382.208
$1\frac{1}{8}$	2.997								

SQUARE IRON—ONE FOOT IN LENGTH

Size	Weight	Size	Weight	Size	Weight	Size	Weight	Size	Weight
$\frac{1}{16}$	.013	$1\frac{1}{2}$	4.278	$2\frac{1}{2}$	33.010	$5\frac{1}{2}$	88.784	$8\frac{1}{2}$	230.068
$\frac{1}{8}$	.053	$1\frac{3}{4}$	5.280	$2\frac{3}{4}$	35.704	$5\frac{3}{4}$	93.168	$8\frac{3}{4}$	244.220
$\frac{3}{16}$	.119	$1\frac{7}{8}$	6.390	3	38.503	$5\frac{7}{8}$	97.667	$8\frac{7}{8}$	258.800
$\frac{1}{4}$	.211	$1\frac{9}{8}$	7.604	$3\frac{1}{4}$	41.408	$5\frac{9}{8}$	102.240	9	273.792
$\frac{5}{16}$	.330	$1\frac{5}{4}$	8.926	$3\frac{3}{4}$	44.418	$5\frac{11}{8}$	106.953	$9\frac{1}{4}$	289.220
$\frac{3}{8}$	.475	1 $\frac{15}{8}$	10.352	$3\frac{7}{8}$	47.584	$5\frac{13}{8}$	111.756	$9\frac{3}{4}$	305.056
$\frac{7}{16}$	.647	$1\frac{7}{4}$	11.883	$3\frac{9}{8}$	50.756	$5\frac{15}{8}$	116.671	$9\frac{1}{2}$	321.332
$\frac{9}{16}$	.845	2	13.520	4	54.064	6	121.664	10	337.920
$\frac{1}{2}$	1.069	$2\frac{1}{4}$	15.263	$4\frac{1}{4}$	57.517	$6\frac{1}{2}$	132.040	$10\frac{1}{2}$	355.136
$\frac{5}{8}$	1.320	$2\frac{1}{2}$	17.112	$4\frac{1}{2}$	61.055	$6\frac{3}{4}$	142.816	$10\frac{3}{4}$	372.672
$\frac{3}{4}$	1.597	$2\frac{3}{4}$	19.066	$4\frac{3}{4}$	64.700	$6\frac{7}{8}$	154.012	11	390.625
$\frac{7}{8}$	1.901	$2\frac{7}{8}$	21.120	$4\frac{7}{8}$	68.448	7	165.632	$11\frac{1}{2}$	408.960
1	2.231	3	23.292	$4\frac{9}{8}$	72.305	$7\frac{1}{2}$	177.672	$11\frac{3}{4}$	427.512
$1\frac{1}{16}$	2.588	$3\frac{1}{4}$	25.560	$4\frac{11}{8}$	76.264	$7\frac{3}{4}$	190.136	$11\frac{1}{2}$	447.024
$1\frac{1}{8}$	2.971	$3\frac{1}{2}$	27.939	$4\frac{13}{8}$	80.333	$7\frac{5}{8}$	203.024	$11\frac{3}{4}$	466.684
$1\frac{1}{4}$	3.380	3 $\frac{3}{4}$	30.416	5	84.480	8	216.336	12	486.656
$1\frac{3}{8}$	3.816								

Sheet Iron and Steel
WEIGHT OF ONE SQUARE FOOT, BIRMINGHAM GAUGE

Gauge	Weight in Pounds		Gauge	Weight in Pounds	
	Iron	Steel		Iron	Steel
No. 1= .3	12.12	12.36	No. 16= .065	2.63	2.68
No. 2=.284	11.48	11.71	No. 17=.063	2.34	2.39
No. 3=.259	10.47	10.63	No. 18=.049	1.98	2.02
No. 4=.238	9.62	9.81	No. 19=.042	1.70	1.73
No. 5=.22	8.89	9.07	No. 20=.035	1.56	1.59
No. 6=.203	8.20	8.36	No. 21=.032	1.40	1.43
No. 7=.18	7.27	7.42	No. 22=.023	1.25	1.28
No. 8=.165	6.67	6.80	No. 23=.025	1.12	1.14
No. 9=.148	5.98	6.10	No. 24=.022	1.00	1.02
No. 10=.134	5.42	5.53	No. 25=.02	.9	.92
No. 11=.12	4.85	4.95	No. 26=.018	.8	.82
No. 12=.109	4.41	4.50	No. 27=.016	.72	.73
No. 13=.095	3.84	3.92	No. 28=.014	.64	.65
No. 14=.083	3.35	3.42	No. 29=.013	.56	.57
No. 15=.072	2.91	2.97	No. 30=.012	.5	.51

Weights of Flat Steel

PER LINEAL FOOT

Width in Inches	Thickness in Inches										
	$\frac{1}{16}$	$\frac{3}{16}$	$\frac{1}{8}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
1	.21	.43	.638	.850	1.06	1.28	1.49	1.70	2.12	2.55	2.98
1 $\frac{1}{4}$	.24	.48	.720	.965	1.20	1.43	1.68	1.92	2.39	2.87	3.35
1 $\frac{1}{2}$	.27	.53	.797	1.06	1.33	1.59	1.86	2.12	2.65	3.19	3.72
1 $\frac{3}{4}$	.30	.59	.875	1.17	1.46	1.76	2.05	2.34	2.92	3.51	4.09
2	.32	.64	.967	1.28	1.59	1.92	2.23	2.55	3.19	3.83	4.47
2 $\frac{1}{4}$	.35	.69	1.04	1.38	1.73	2.08	2.42	2.77	3.46	4.15	4.84
2 $\frac{1}{2}$	.38	.75	1.11	1.49	1.86	2.23	2.60	2.98	3.72	4.47	5.20
2 $\frac{3}{4}$	.43	.85	1.28	1.70	2.12	2.55	2.98	3.40	4.25	5.10	5.95
3	.48	.96	1.44	1.91	2.39	2.87	3.35	3.83	4.78	5.75	6.69
3 $\frac{1}{4}$	.53	1.06	1.59	2.12	2.65	3.19	3.72	4.25	5.31	6.38	7.44
3 $\frac{1}{2}$	.59	1.17	1.75	2.34	2.92	3.51	4.09	4.67	5.84	7.02	8.18
3 $\frac{3}{4}$	.64	1.28	1.91	2.55	3.19	3.83	4.46	5.10	6.38	7.65	8.93
4	.69	1.38	2.07	2.76	3.45	4.15	4.83	5.53	6.91	8.29	9.67
4 $\frac{1}{4}$	.75	1.49	2.23	2.98	3.72	4.47	5.20	5.95	7.44	8.93	10.41
4 $\frac{1}{2}$	.80	1.60	2.39	3.19	3.99	4.78	5.58	6.38	7.97	9.57	11.16
4 $\frac{3}{4}$	.85	1.70	2.55	3.40	4.25	5.10	5.95	6.80	8.50	10.20	11.90
5	.96	1.92	2.87	3.83	4.78	5.74	6.70	7.65	9.57	11.48	13.39
5 $\frac{1}{4}$	1.07	2.13	3.19	4.25	5.31	6.38	7.44	8.50	10.63	12.75	14.87
5 $\frac{1}{2}$	1.17	2.34	3.51	4.67	5.84	7.02	8.18	9.35	11.69	14.03	16.37
6	1.28	2.55	3.83	5.10	6.38	7.65	8.93	10.20	12.75	15.30	17.85
7	1.49	2.98	4.46	5.95	7.44	8.93	10.41	11.90	14.87	17.85	20.83
8	1.70	3.40	5.10	6.80	8.50	10.20	11.90	13.60	17.00	20.40	23.80

Tank Iron and Steel

WEIGHT OF ONE SQUARE FOOT

Thickness in Inches	Weight in Pounds		Thickness in Inches	Weight in Pounds	
	Iron	Steel		Iron	Steel
$\frac{1}{16}$ = .03125	1.27	1.30	$\frac{1}{8}$ = .3125	12.63	12.88
$\frac{1}{8}$ = .0625	2.52	2.57	$\frac{3}{16}$ = .375	15.16	15.46
$\frac{3}{16}$ = .09375	3.79	3.87	$\frac{1}{4}$ = .4375	17.68	18.03
$\frac{1}{4}$ = .125	5.05	5.15	$\frac{5}{16}$ = .5	20.21	20.61
$\frac{5}{16}$ = .15625	6.32	6.45	$\frac{3}{8}$ = .5625	22.73	23.19
$\frac{3}{8}$ = .1875	7.58	7.73	$\frac{7}{16}$ = .625	25.26	25.77
$\frac{7}{16}$ = .21875	8.84	9.02	$\frac{1}{2}$ = .75	30.31	30.92
$\frac{1}{2}$ = .25	10.10	10.30	$\frac{5}{8}$ = .875	35.37	36.08
$\frac{5}{8}$ = .28125	11.33	11.61	1 = 1.000	40.42	41.23

Weight and Bulk of Substances

	Cubic Ft. in Lbs.	Cubic Ft. per Ton		Lbs. per Bu.
Cast iron-----	450.5	4.97	Coal -----	80
Wrought iron-----	486.6	4.60	Wheat -----	60
Steel -----	489.8	4.57	Corn, shelled-----	56
Copper -----	555.0	4.03	Corn, cob-----	70
Lead -----	707.7	3.16	Corn meal -----	50
Brass -----	537.7	4.16	Rye -----	56
Pine, white-----	29.56	75.6	Barley -----	48
Pine, yellow-----	33.81	66.2	Buckwheat -----	50
Marble, average-----	170.0	15.9	Oats -----	32
Mill stone-----	155.0	17.2	Clover seed-----	60
Oak, white-----	45.2	49.5	Flax seed-----	56
Clay -----	120.0	22.1	Beans -----	60
Concrete, ordinary-----	130.0	19.5	Potatoes -----	60
Brick, in mortar-----	110.0	22.4	Salt -----	56
Sand -----	94.5	23.7	Bran -----	20
Granite -----	175.0	16.1	Blue grass seed-----	14
Earth, loose-----	100.0	28.5	Hemp -----	48
Water -----	62.5	35.9	Timothy -----	45
Ice -----	58.08	38.56	Lime -----	75
Coal, anthracite-----	54.	43.	Cement, Portland-----	96
Coal, bituminous-----	49.	48.	Sand -----	122
Coke -----		62.		

Metric Conversion Table

Millimetres $\times .03937$ = inches.	Litres $\div 28.316$ = cubic feet.
Millimetres $\div 25.4$ = inches.	Hectolitres $\times 3.531$ = cubic feet.
Centimetres $\times .3937$ = inches.	Hectolitres $\times 2.84$ = bushels 2150.42 cubic in.
Centimetres $\div 2.54$ = inches.	Hectolitres $\times .131$ = cubic yards.
Metres $\times 39.37$ = inches. (Act Congress).	Hectolitres $\div 26.42$ = gallons (231. cu. in.)
Metres $\times 3.281$ = feet.	Grammes $\times 15.432$ = grains. (Act Congress.)
Metres $\times 1.094$ = yards.	Grammes $\div 981$ = dynes.
Kilometres $\times .621$ = miles.	Grammes (water) $\div 29.57$ = fluid ounces.
Kilometres $\div 1.6093$ = miles.	Grammes $\div 28.35$ = ounces avoirdupois.
Kilometres $\times 3280.7$ = feet.	Grammes per cu. cent. $\div 27.7$ = lbs. per cu. in.
Square Millimetres $\times .0155$ = square inches.	Joule $\times .7373$ = foot pounds.
Square Millimetres $\div 645.1$ = square inches.	Kilo-grammes $\times 2.2046$ = pounds.
Square Centimetres $\times .155$ = square inches.	Kilo-grammes $\times 35.3$ = ounces avoirdupois.
Square Centimetres $\div 6.461$ = square inches.	Kilo-grammes $\div 1102.3$ = tons (2000 lbs.)
Square Metres $\times 10.764$ = square feet.	Kilo-gr. per sq. cent. $\times 14.223$ = lbs. per sq. in.
Square Kilometres $\times 247.1$ = acres.	Kilo-gram-metres $\times 7.233$ = foot pounds.
Hectare $\times 2.471$ = acres.	Kilo per Metre $\times .672$ = pounds per foot.
Cubic Centimetres $\div 16.383$ = cubic inches.	Kilo per Cu. Metre $\times .026$ = lbs. per cu. ft.
Cubic Centimetres $\div 3.69$ = fl. drachms. (U.S.P.)	Kilo per Cheval $\times 2.235$ = pounds per H. P.
Cubic Centimetres $\div 29.57$ = fluid oz. (U.S.P.)	Kilo-Watts $\times 1.34$ = Horse Power.
Cubic Metres $\times 35.315$ = cubic feet.	Watts $\div 746$ = Horse Power.
Cubic Metres $\times 1.308$ = cubic yards.	Watts $\div .7373$ = foot pounds per second.
Cubic Metres $\times 264.2$ = gallons (231. cu. in.)	Calorie $\times 3.968$ = B. T. U.
Litres $\times 61.022$ = cubic in. (Act Congress.)	Cheval vapeur $\times .9863$ = Horse Power.
Litres $\times 33.84$ = fluid ounces (U.S. Phar.)	(Centigrade $\times 1.8$) $+ 32$ = degree Fahrenheit.
Litres $\times .2642$ = gallons (231. cu. in.)	Franc $\times .193$ = Dollars.
Litres $\div 3.78$ = gallons (231. cu. in.)	Gravity Paris = 980.94 centimetres per second.

Table of Approximate Numbers For Various Purposes

Diameter of a circle $\times 3.1416$ = circumference.	Diameter of a sphere $\times .6667$ = length of equal cylinder.
Diameter of a circle $\times .8862$ = side of an equal square.	Square inches $\times .00695$ = square feet.
Diameter of a circle $\times .7071$ = side of inscribed square.	Cubic inches $\times .00058$ = cubic feet.
Square of diameter $\times .7854$ = area of circle.	Cubic feet $\times .03704$ = cubic yards.
Circumference of a circle $\times .31831$ = diameter.	Cylindrical inches $\times .0004546$ = cubic feet.
Side of square $\times 1.128$ = diam. of equal circle.	Cylindrical feet $\times .02909$ = cubic yards.
Square root of area $\times 1.12837$ = diameter of equal circle.	Cubic inches $\times .003607$ = imperial gallons.
Square of the diameter of a sphere $\times 3.1416$ = convex surface.	Cubic feet $\times .6232$ = imperial gallons.
Cube of diameter of a sphere $\times .5236$ = solidity.	Cylindrical feet $\times 4.895$ = imperial gallons.
Diameter of sphere $\times .806$ = dimensions of equal cube.	183.346 circular inches = 1 square foot.
Cylindrical inches $\times .02909$ = imperial gallons.	2,200 cylindrical inches = 1 cubic foot.
	Avoirdupois pounds $\times .009$ = cwts.
	Avoirdupois pounds $\times .00045$ = tons.
	Lineal feet $\times .00019$ = statute miles.
	Lineal yards $\times .000568$ = statute miles.

To Compute The Contents of a Hopper

Multiply the length by the breadth in inches, and this product by one-third the depth, measuring to the point. Divide the last product by 2150, and the quotient thus obtained will be the contents of the hopper in bushels.

To Compute The Contents of a Bin or Box

Multiply the length in feet, by the breadth, and this by the depth. Four-fifths of this product will give the contents in bushels.

If measurements are taken in inches, multiply as above and divide the product by 2150. The quotient thus obtained will be the contents in bushels.

Standard Lumber Measurement Table

Size, Inches	Length in Feet of Joists, Scantling and Timber									
	12	14	16	18	20	22	24	26	28	30
2 x 4	8	9	11	12	13	15	16	17	19	20
2 x 6	12	14	16	18	20	22	24	26	28	30
2 x 8	16	19	21	24	27	29	32	35	37	40
2 x 10	20	23	27	30	33	37	40	43	47	50
2 x 12	24	28	32	36	40	44	48	52	56	60
2 x 14	28	33	37	42	47	51	56	61	65	70
3 x 4	12	14	16	18	20	22	24	26	28	30
3 x 6	18	21	24	27	30	33	36	39	42	45
3 x 8	24	28	32	36	40	44	48	52	56	60
3 x 10	30	35	40	45	50	55	60	65	70	75
3 x 12	36	42	48	54	60	66	72	78	84	90
3 x 14	42	49	56	63	70	77	84	91	98	105
4 x 4	16	19	21	24	27	29	32	35	37	40
4 x 6	24	28	32	36	40	44	48	52	56	60
4 x 8	32	37	43	48	53	59	64	69	75	80
4 x 10	40	47	53	60	67	73	80	87	93	100
4 x 12	48	56	64	72	80	88	96	104	112	120
6 x 6	36	42	48	54	60	66	72	78	84	90
6 x 8	48	56	64	72	80	88	96	104	112	120
6 x 10	60	70	80	90	100	110	120	130	140	150
6 x 12	72	84	96	108	120	132	144	156	168	180
8 x 8	64	75	85	96	107	117	128	139	149	160
8 x 10	80	93	107	120	133	147	160	173	187	200
8 x 12	96	112	128	144	160	176	192	208	224	240
10 x 10	100	117	133	150	167	183	200	217	233	250
10 x 12	120	140	160	180	200	220	240	260	280	300
12 x 12	144	168	192	216	240	264	288	313	336	360
12 x 14	168	196	224	252	280	308	336	364	392	420
14 x 14	196	229	261	294	327	359	392	425	457	490

Board and Timber Measure

To ascertain the surface of a board or plank. RULE—Multiply the length by the breadth, and the product will give the surface required.

NOTE—When the piece is tapering, add the breadths of the two ends together, and take half the sum for the mean breadth.

To ascertain the contents of squared timber. RULE—Multiply the breadth by the thickness, and this product by the length, and it will give the contents required.

NOTE—If the piece tapers regularly from end to end, its average breadth and thickness will be at the middle.

To ascertain the contents of a log. RULE—Multiply the square of one-fifth of the girth by twice the length, and the product will give the contents, nearly.

NOTE—When feet are multiplied by inches, divide by 144 to obtain cubic feet.

Estimated Weights of Lumber

	Lbs.		Lbs.
Walnut, dry, per square foot.....	4	Oak, green, per square foot.....	5 1/2
Walnut, green, per square foot.....	5	Sycamore, dry, per square foot.....	3 1/2
Cherry, dry, per square foot.....	3 1/2	Sycamore, green, per square foot.....	4 1/2
Cherry, green, per square foot.....	4 1/2	Chestnut, dry, per square foot.....	3 1/2
Ash, dry, per square foot.....	3 1/2	Chestnut, green, per square foot.....	4 1/2
Ash, green, per square foot.....	4 1/2	Basswood, dry, per square foot.....	2 1/2
Maple, dry, per square foot.....	4 1/2	Basswood, green, per square foot.....	4
Maple, green, per square foot.....	6	Butternut, dry, per square foot.....	3
Hickory, dry, per square foot.....	5	Butternut, green, per square foot.....	4
Hickory, green, per square foot.....	6 1/2	Whitewood, dry, per square foot.....	2 1/2
Oak, dry, per square foot.....	4 1/2	Whitewood, green, per square foot.....	4

Miscellaneous Tables

CIRCUMFERENCE AND AREA OF CIRCLES

Diam.	Circum.	Area	Diam.	Circum.	Area	Diam.	Circum.	Area
1	.785	.049	14	43.982	153.98	46	144.513	1661.9
1	1.570	.196	14	44.767	159.48	47	147.655	1734.9
1	2.356	.441	14	45.553	165.13	48	150.796	1809.5
1	3.141	.785	14	46.338	170.87	49	153.938	1885.7
1	3.926	1.227	15	47.123	176.78	50	157.080	1963.5
1	4.712	1.767	15	47.909	182.65	51	160.221	2042.8
2	5.497	2.405	15	48.694	188.69	52	163.363	2123.7
2	6.283	3.141	15	49.480	194.82	53	166.504	2206.1
2	7.068	3.976	16	50.265	201.06	54	169.646	2290.2
2	7.853	4.908	16	51.050	207.39	55	172.788	2375.8
2	8.639	5.939	16	51.836	213.82	56	175.929	2463.0
3	9.424	7.068	16	52.621	220.35	57	179.071	2551.7
3	10.210	8.295	17	53.407	226.98	58	182.212	2642.0
3	10.995	9.621	17	54.192	233.70	59	185.354	2733.9
3	11.781	11.045	17	54.977	240.52	60	188.496	2827.4
4	12.566	12.566	17	55.763	247.45	61	191.637	2922.4
4	13.351	14.186	18	56.548	254.46	62	194.779	3019.0
4	14.137	15.904	18	57.334	261.58	63	197.920	3117.2
4	14.922	17.721	18	58.119	268.80	64	201.062	3216.9
5	15.708	19.635	18	58.904	276.11	65	204.204	3318.3
5	16.493	21.648	19	59.690	283.52	66	207.345	3421.2
5	17.279	23.758	19	60.475	291.03	67	210.487	3525.6
5	18.064	25.967	19	61.261	298.64	68	213.628	3631.6
6	18.849	28.274	19	62.046	306.35	69	216.770	3739.2
6	19.635	30.679	20	62.831	314.16	70	219.911	3848.4
6	20.420	33.183	20	63.616	322.06	71	223.053	3959.2
6	21.205	35.784	21	64.402	330.06	72	226.195	4071.5
7	21.991	38.484	21	65.187	338.26	73	229.336	4185.3
7	22.776	41.282	22	65.973	346.56	74	232.478	4300.8
7	23.561	44.178	22	66.758	354.96	75	235.619	4417.8
7	24.347	47.173	23	67.544	363.46	76	238.761	4536.4
8	25.132	50.265	23	68.330	372.06	77	241.903	4656.6
8	25.918	53.456	24	69.115	380.76	78	245.044	4778.3
8	26.703	56.745	24	69.901	389.56	79	248.186	4901.6
8	27.488	60.132	25	70.687	398.46	80	251.327	5026.5
9	28.274	63.617	25	71.473	407.46	81	254.469	5153.0
9	29.059	67.200	26	72.258	416.56	82	257.611	5281.0
9	29.845	70.882	26	73.044	425.76	83	260.752	5410.6
9	30.630	74.662	27	73.830	435.06	84	263.894	5541.7
10	31.415	78.539	27	74.616	444.46	85	267.035	5674.5
10	32.201	82.516	28	75.402	453.96	86	270.177	5808.8
10	32.986	86.590	28	76.187	463.56	87	273.319	5944.6
10	33.772	90.760	29	76.973	473.26	88	276.460	6082.1
11	34.557	95.033	29	77.758	483.06	89	279.602	6221.1
11	35.342	99.402	30	78.544	492.96	90	282.743	6361.7
11	36.128	103.869	30	79.330	502.96	91	285.885	6503.8
11	36.913	108.430	31	80.116	513.06	92	289.027	6647.6
12	37.699	113.097	31	80.901	523.26	93	292.167	6792.9
12	38.484	117.859	32	81.687	533.56	94	295.309	6939.7
12	39.269	122.717	32	82.473	543.96	95	298.451	7088.2
12	40.055	127.670	33	83.258	554.46	96	301.593	7238.2
13	40.840	132.73	33	84.044	565.06	97	304.734	7389.8
13	41.626	137.88	34	84.830	575.76	98	307.876	7542.9
13	42.411	143.13	34	85.616	586.56	99	311.018	7697.7
13	43.196	148.48	35	86.402	597.46	100	314.159	7853.9

To find the circumference of circle, multiply the diameter by 3.1416.

To find the diameter of circle, divide the circumference by 3.1416, or multiply by 7 and divide by 22, and the product is the diameter.

To find area of circle, square the diameter and multiply by 0.7854.

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